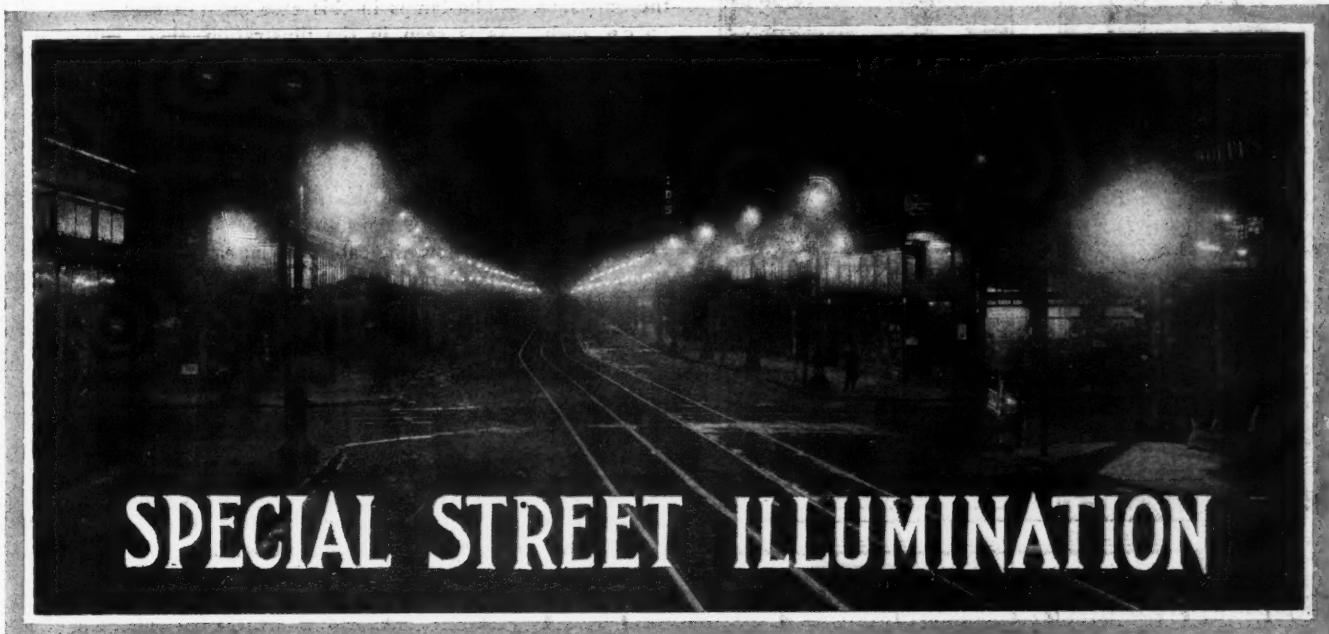


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SPECIAL STREET ILLUMINATION

ILLUMINATION OF BROADWAY, ST. LOUIS, WITH THREE-LAMP STANDARDS

In our issue of July 14 of this year we published a brief description of the then-contemplated lighting of the business district of St. Louis, which was being brought about by and largely at the expense of the Down Town Lighting Association. At that time the style of lamp standard and type of lamp had been decided upon, an elevation of the proposed standard and lamp being given in connection with the article. A considerable part of the proposed lighting system has been completed, and on the next page will be seen photographs of the lamp standards in position.

Actual construction work on the new system was begun in August last, and every effort was made by the Union Electric Light & Power Company to have as many streets as possible completed in time for the centennial celebration which began October 4. On that date enough streets were completed to show what the entire system would be like when completed.

The district illuminated by the new system is bounded by Fourth street on the east, Twelfth street on the west, Washington avenue on the north and Market street on the south, comprising a total of 48 square blocks.

Prior to the installation of the new system there were in this district only 138 arc lamps of the old enclosed type, which had been installed ten years previous. Under the plan of the Down Town Lighting Association there are being installed within this district 437 6.8-ampere General Electric magnetite lamps. These are placed in a uniform manner on all the streets in the district, with the exception of Broadway. This

street was not included in the general lighting scheme, but was left to the City Improvement Association, composed of property owners and merchants on Broadway. This association installed on this street 240 4-ampere General Electric magnetite lamps, the maintenance of which is paid for by this association.

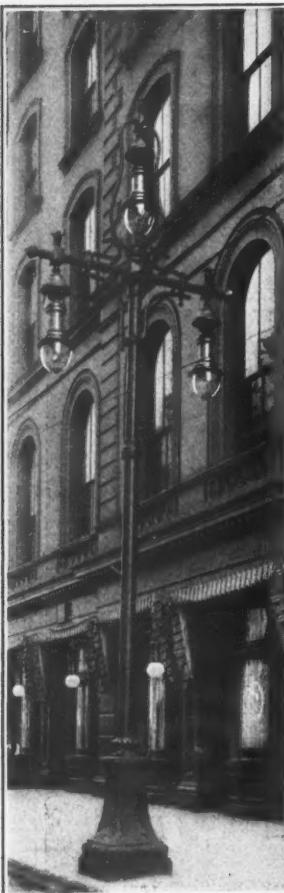
As stated in the previous article, the plan of the Down Town Lighting Association calls for four lamps at each street intersection, one on each corner and so arranged that two will line up with those on the north and south streets and two with those on the east and west streets. In addition, there are placed two lamps in the middle of the block, so arranged that they are approximately 80 feet between centers. This gives a total of six lamps per block.

On Broadway the lamp standards are designed to carry three 4-ampere magnetite lamps; the standards are placed opposite each other on both sides of the street, and are approximately 60-foot centers. This gives a total of ten standards, or thirty arc lamps per block. The effect of this illumination is exceedingly brilliant, and has transformed the old dark Broadway of former days into one of the most brilliantly lighted thoroughfares in America.

To indicate the magnitude of the new system it might be mentioned that in the downtown business district there will be installed, when the system is completed, 667 magnetite lamps, of which 427 are 6.8 ampere and 240 are 4-ampere lamps. There are fourteen streets illuminated by the single lamp

standards and one by the triple lamp standards. In all, there are five miles of streets illuminated.

The cost to the property owners in the district, outside of Broadway, was \$30,000, and the installation on Broadway amounted to \$10,000. The city having agreed to maintain all of the lights, excepting those on Broadway, the additional cost to it will be \$30,000 per year, to be paid out of the general funds of the city, while on Broadway, where the maintenance is borne by the merchants, the cost is approximately \$9,000 per year.



TRIPLE AND SINGLE LAMP STANDARDS

In order to supply the current for the new magnetite lamps the Union Electric Light & Power Company has installed in its station at Tenth and St. Charles streets three 75-light, 4-ampere General Electric mercury rectifiers and regulators, and



seven 75-light, 6.8-ampere rectifiers. In addition to this, it has installed additional generators. The company has also, at its own cost, done all of the installation of the new system, and has furnished all of the new lamps, the only thing paid for by the property owners in the district being the new ornamental lamp standards. When finally completed, the total cost of new equipment and construction, it is estimated by Mr. S. Way, Superintendent of the Electrical Department of the Union Company, will be fully \$100,000, thus making the total cost of the system to the property owners and the Union Electric Light & Power Company in the neighborhood of \$140,000.

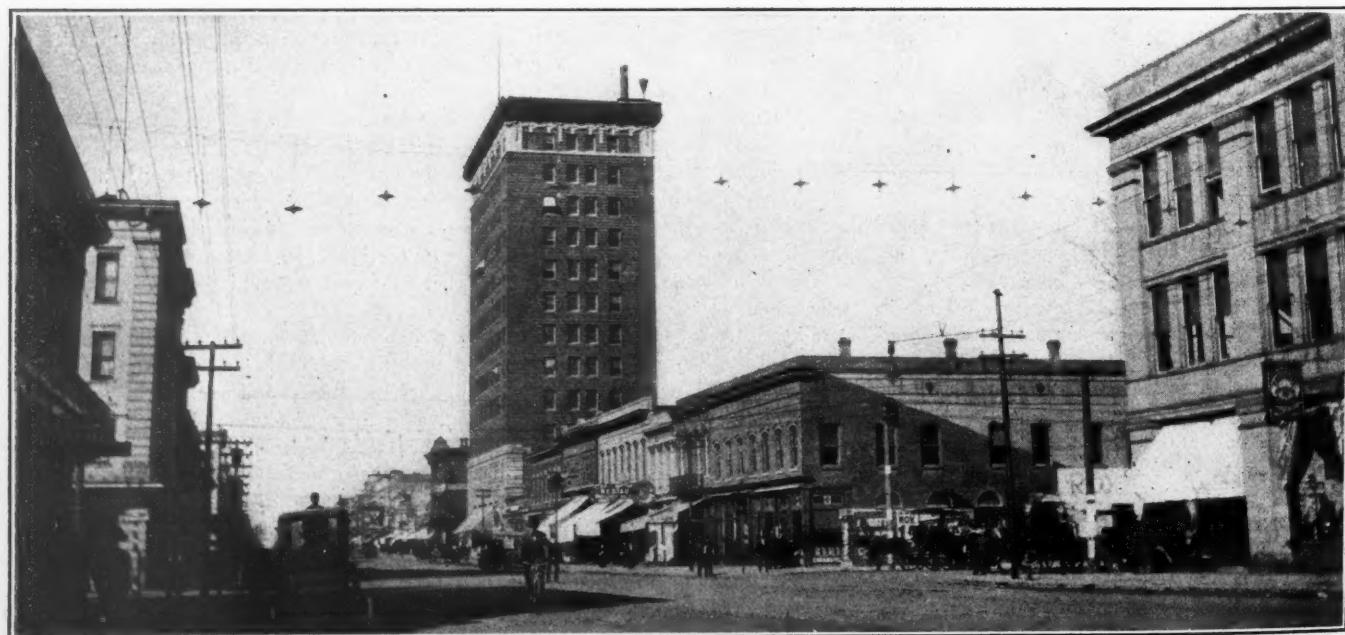
MAIN STREET, COLUMBIA

The main street of Columbia, S. C., is now lighted by lamps so arranged as to give the effect of arches across the street, the general effect being shown by one of the accompanying illustrations, and another showing the appearance of the lamps by day. (The white streaks on the pavement in the night picture were caused by automobile searchlights passing during the exposure.) The lamps in this case are tungsten lamps of 60 c.p. each. As is seen in the illustration, these lamps are suspended from a cable which is stretched across the street, there being seventeen from each cable. The cable is about a half-inch in diameter and is attached at its ends to the buildings at about the level of the third floor, a turnbuckle being provided at one end for giving the cable the desired sag. Common snap hooks are strung on this cable, one for each lamp, and from each hook a spool insulator is suspended, hanging about eight inches below the cable. From each insulator is suspended a lamp, the lengths of the suspending wires being so regulated as to bring the lamps into the line of an arch. Through the insulators runs the feed wire, which is connected to the individual wires leading to each lamp, and at the end receives the current from the main line. These cables and their suspended lamps are placed at intervals of about 100 feet along Main street for a number of blocks. Some of these lamps were installed last spring and the balance about November 1. The lamps were paid for by the merchants along the street, as is also the current for operating them. They were installed by the Perry Mann Electric Company.

COLUMBUS ARCHES

High street, the main street of Columbus, O., is lighted by steel arches spanning the street, supported at each end by a pole set at the curb line, each arch carrying fifty incandescent lamps. Current is furnished by the municipal light plant for these as for all the street lighting.

This arch system was extended in North High street late in 1908. During the spring of this year it was carried down



MAIN STREET, COLUMBIA, BY DAY; SHOWING LAMPS AND SUSPENDING CABLE



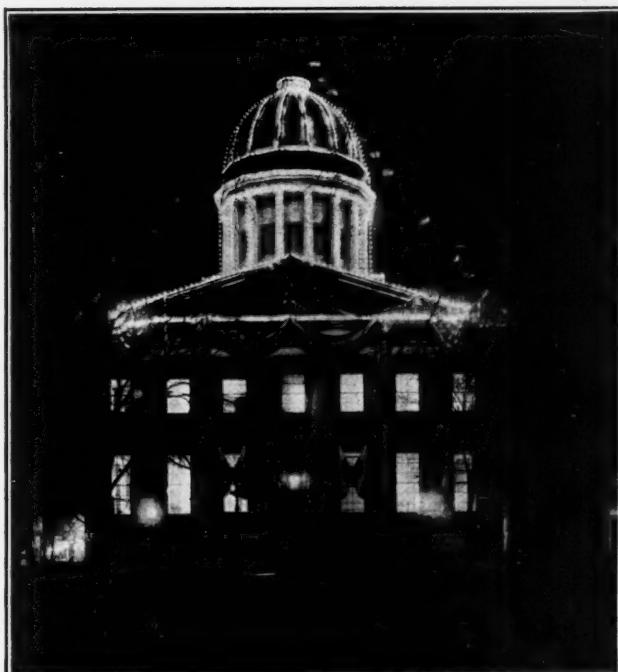
HIGH STREET, COLUMBUS, BY NIGHT

West Broad street from High to the Scioto river by the West Broad Street Business Men's Association. It is also proposed to place similar arches on East Broad street to Memorial Hall. At the intersection of Broad and High will be intersecting diagonal arches. "Arch City" as a soubriquet for Columbus is suggested by these arches.

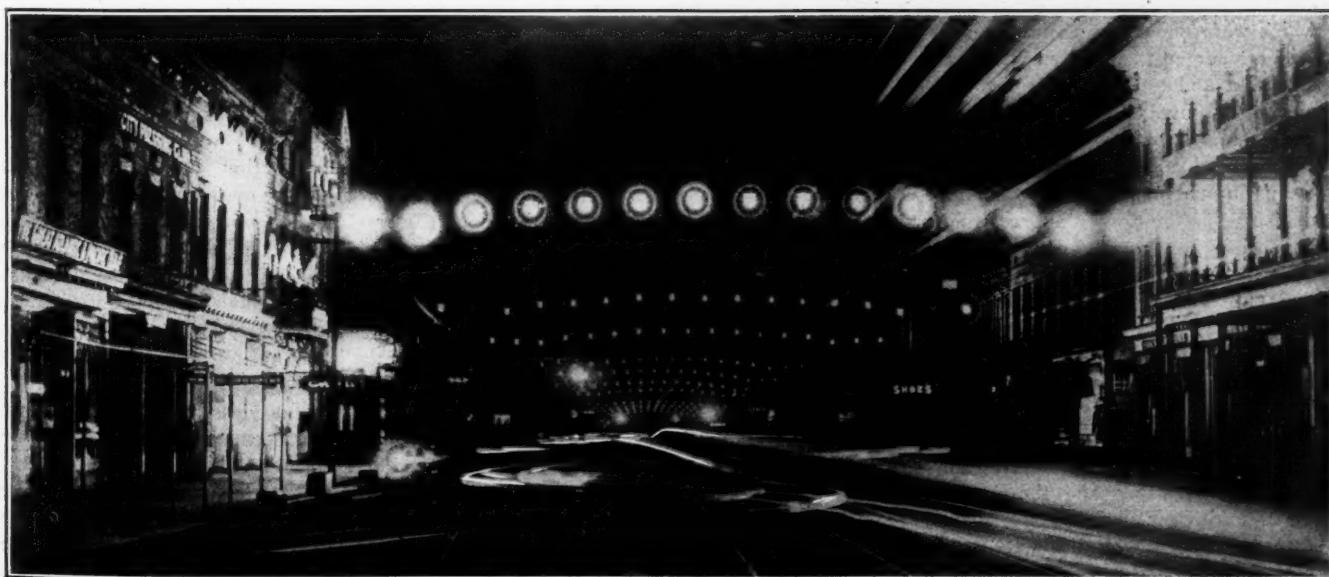
NORFOLK COURT HOUSE

In connection with a recent waterways convention, the city of Norfolk, Va., illuminated the Court House, using for this purpose 1,400 incandescent electric lights, showing the outline of the dome, the gable, the columns and the building proper. This building, which is one of the historic features of the city, stands at the head of City Hall avenue, and the illumination is visible from almost every part of the city and from the harbor. The work was done under the supervision of City Electrician R. A. Smith.

This has been so much admired by visitors and citizens alike that a movement is on foot, and will probably be carried through, for making this illumination permanent. Several cities have apparently found it to their interest to thus illuminate one or more of their principal public buildings, such as State houses and County Court houses. While this does not, of course, furnish street lighting commensurate with the amount of current consumed, it serves most strikingly to attract the attention of those passing by or through in trains or steamers, and in this way serves as an advertisement of the city.



NORFOLK COURT HOUSE ILLUMINATED



MAIN STREET, COLUMBIA, BY NIGHT

ROAD TARRING

Temporary and Permanent Improvement—Surface and Penetration Methods—Quantities of Materials Required—
Tar Spreading Machines—Tar Macadams

IN our issue of Sept. 22 we published an abstract of a paper by Mr. W. H. Fulweiler discussing the subject of dust-laying methods and materials. In the same article the author considers at length the improvement of streets, both temporary and permanent, by the use of tar. This he finds to be used in three ways: By painting the road surface by the use of brushes and dusting it lightly with sand; painting by machine or with a very light coating of thinned tar and dusting with sand; and coating the surface with a fairly heavy coating of hot tar, covering with a light coating of screenings and rolling. The first is that principally employed in France, the second in England, and the third in America.

In the use of tar he considers the most important essential to be that of the weather, which should have been clear and warm for a sufficient time to insure that the road is thoroughly dry for several inches down. This means, in this latitude, that no work of this kind can be done before June or after September. Even between these dates there will be so many unsuitable days that the cost of the work will be increased by enforced idleness of men and plant.

Another important matter in surface treatment is the removal of all dust from the road. For this reason the cost of such work is much less expensive in France and England than in this country because the macadam roads there are more generally kept free of dust as a matter of common maintenance. The lack of the removal of dust is, Mr. Fulweiler states, responsible for the majority of failures in surface application of tars. The two main reasons for this are that tar dropped upon dust collects in little globules and does not penetrate the road at all, but is washed away by the first rain; and that where the tar and dust unite, especially in chuck holes, they form a cake, which, under the action of weather and traffic, is carried away by the wheels, leaving the surface unprotected.

The use of brushes for spreading the tar is very important, even when it is distributed by machine, as these spread it more evenly, remove any excess and cover the thin places. This is especially important when the dust has not been completely removed as it works the tar down to the hard surface and makes it take a hold on this.

The surface should remain undisturbed for several hours after tarring to allow the absorption of the tar, and then be lightly covered with just sufficient clean, sharp sand to absorb any of the tar remaining on the surface and to fill the voids which were opened by the sweeping.

The labor cost of applying the hot tar in this way was considerable, and to obviate the heating, tars are thinned with tar oils; and to avoid the labor necessary for sweeping and spreading, a number of machines have been invented to spray the tar on the road under pressure. Where this method is employed the preliminary sweeping need only remove the larger particles of debris, as the pressure forces the tar through the dust. The uniformity of the machine action allows a very much smaller quantity of tar to be used and yet secure a continuous coating, thus entirely doing away with brooming afterward. Moreover, the work is done 20 or more times as rapidly, thus enabling more work to be done during the limited season of suitable weather. This method has been widely used in England with both coal-gas tar, and almost entirely now with water-gas tar, and has given generally satisfactory results.

Machines used for this purpose include the Aitkens Pneumatic Tar Sprayer and the Tarspra. The former atomizes the tar with air under a pressure of 100 to 150 pounds and forces it into the road surface. Some of these machines are power driven, and in such the tar may be heated by steam coils. The Tarspra machine discharges the tar under a pressure of

200 pounds, which pressure is maintained constant by pumps. There are a number of other machines, but Mr. Fulweiler believes these to be the two at present most important.

The third method has been employed in this country chiefly because of the rougher surfaces of our American roads. "The work is done as under the first method, except that a considerably heavier refined grade of tar is used, which has more body and greater binding properties and it is applied about twice as heavily. Then, instead of sand, a light coating of clean gravel or fine stone chips is put on, and the whole surface is rolled with a road roller. This treatment renews the wearing surface and fills the voids made by sweeping very much better than the sanding, while it also (from the heavier tar used and greater quantity) seems to penetrate more deeply, and its effect is more lasting. It succeeds best on macadam roads. It is practically mud-proof; absolutely free from road dust; apparently proof against very heavy motor traffic, and under American conditions is by far the most satisfactory surface treatment. Its cost, however, is very much higher than either of the two other methods. In this connection it will be considered later with respect to other methods.

Considering now some of the details regarding the proper quantities of materials necessary, we find that they are dependent almost entirely on the condition of the surface to be treated, and they may be tabulated as follows:

	MATERIALS		
	Per sq. yd.	Per sq. yd.	Tons per sq. yd.
Method No. 1, Smooth roads.....	.20—.30	.006	
Rough roads.....	.30—.40	.009	
Method No. 2, Smooth roads.....	.12—.15	.003	
Rough roads.....	.15—.25	.005	
Method No. 3, Smooth roads.....	.33—.45		.010—.015
Rough roads.....	.45—.65		.015—.025
Gravel roads.....	.60—.70		.025—.030

"In general, a road when slightly damp will not absorb one-half the tar that it will when thoroughly dry, and the same holds with a badly swept road. Gravel will take more tar than macadam."

As to the material to be used, the first method was developed to utilize a dehydrated coal tar, which was not expected to last more than one season, and two treatments a year is now a common practice. This tar should have a fair body and be free from ammoniacal liquor, as this prevents a proper penetration and has a disintegrating effect on the coating after being applied. Freedom from carbon is another advantage as it is the excess of free carbon which undoubtedly causes the black mud formation which occurs in winter.

In the second method coal tar thinned with tar oils or creosote oils or mixed with resin has given good results, although water-gas tar appears to be better. A number of coats of this are applied in a season and the tar does not require much body. For the third method a much heavier bodied tar is required, as it must act as a matrix for the surface layer of screenings. The material generally used is a dehydrated coal tar with nearly all the light oils removed. During the past year compounds made from water-gas tar have been successfully used.

A more permanent road construction with the use of tar, such as is generally known as tar macadam, was apparently first used in about 1840 in England. From 1871 to 1878 about 7,050 square yards were laid in Washington, a small section of which lasted 30 years. Occasional use of this material mixed by machine was made in Ontario and some United States cities. Between 1890 and 1900 considerable was laid in New England, and in 1901 the Warren bitulithic pavement was patented and has been widely used.

The author notes four general classes of tar macadam: "(1) Where the material is first coated, then spread on the surface and rolled; including Bitulithic, Tarmac and the Gladwell system. (2) Where the materials are coated in layers *in situ*, the so-called penetration system. (3) Where the upper surface is harrowed and the oils worked in by mixing in the surface; the California system, including the Petrolithic and Imperial systems. (4) The use of rock asphalts."

Hand mixing by heating the stone, spreading tar over it and then mixing like concrete is sometimes employed, but machine mixing gives better results and is used on all large pieces of work. The details of mixing and of the various characteristics of the materials employed are too numerous to describe here and are being added to continually. Most of them have already been described in the *MUNICIPAL JOURNAL*. One of the latest, which has been adopted for several roads in New Jersey, is known as Amiesite. "This consists of crushed stone coated cold at the quarry with a hot mixture of 60 per cent solid asphalt and 40 per cent of a heavy asphalt oil. The mixing is done in a concrete mixer, and after the stones are coated about half a bushel of slacked lime is added to each cubic yard. When this is worked in, half a peck of dampened sand is added," this being to prevent the particles of stone from adhering and enabling the material to be handled very easily. The prepared mixture is spread on a clean macadam foundation to the depth of about four inches and, after a thorough rolling, is ready for travel.

"In general," says Mr. Fulweiler, "I do not believe from the results so far obtained, that the methods using the asphaltic base oils will ever achieve complete success in this latitude, owing to the fact that the binder in the surface course seems to lose its life after a winter's exposure to the alternate hail, snow, heat and cold of the climate of this latitude.

"While it is admitted that with a proper tar macadam construction we secure a wearing surface that is dustless, resilient, proof against motor traffic, easy to clean, though expensive, yet there are several objections that must be considered. The most important one is that of grade. In general it has not been found wise to use it on grades greater than three to four in a hundred, owing to the fact that horses seem to have trouble with footing. This is especially apparent during frosty weather in the early morning. On curves in wet weather it has been found to increase the tendency to side-slip with motors. It seems that these effects are caused by an excess of tar on the surface when an insufficient quantity of dry screenings were applied, or they were not rolled in properly and were then picked out by the traffic.

"The most important points in favor of this type of construction are the facts that it is absolutely waterproof, and is, therefore, free from frost action, and that all the stone particles are held rigidly in position so that there can be no internal attrition.

"In considering the question of the influence of the present road surface in general, asphalt oils have given better results on gravel, and tars on macadam. It would obviously not pay to tear up a good macadam surface and lay tar macadam, but it should be tar painted or tarred with screenings until ready for resurfacing, and then rebuilt as a tar macadam road. The same would apply to gravel. If, however, the road was badly ravelled, but not too deeply worn, it might be resurfaced by the penetration method with good results."

He believes it would pay to consider paving certain points, such as crossings and sharp curves, with a durable surface, and use a cheaper form where conditions are less severe.

SELLING TIN CANS

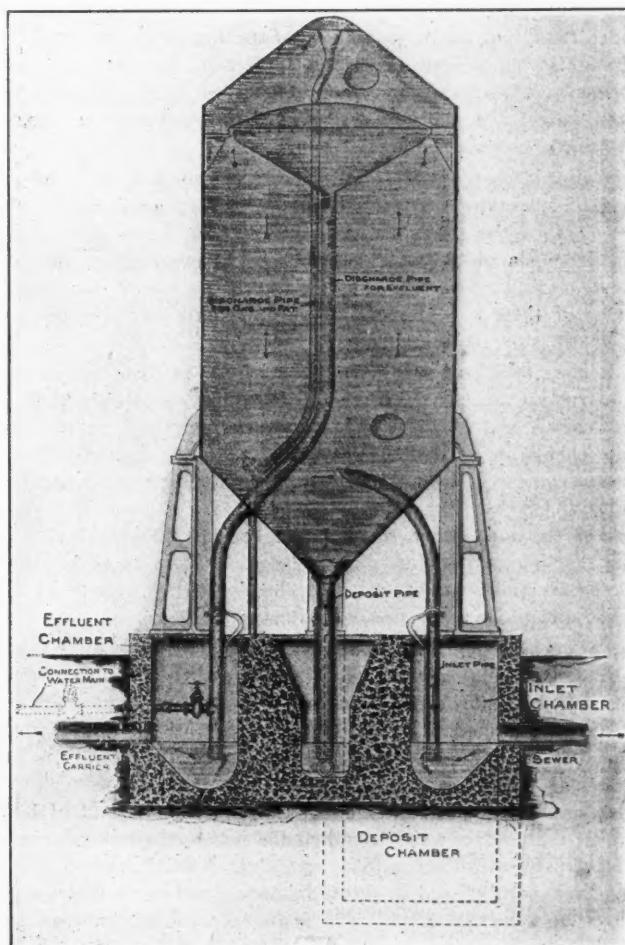
AN interesting detail of refuse disposal was referred to the other evening by Mr. Wm. F. Morse, in an address before the Town Council of Montclair, N. J. Tin cans, he said, found a ready market as metal, but needed to be much compressed in bulk to be handled conveniently and economically. This, he said, had been done by compressing them by running a steam roller over them, after which they could be handled by junk dealers. A more expensive and elaborate appliance is a cylinder in which cans may be compressed into bales under hydraulic pressure. Mr. Morse stated that this town of 20,000 population produced about 20 tons of rubbish—a high rate which indicated a very complete collection, and that a plant for incinerating this would cost from \$20,000 to \$30,000.

SEWAGE CLARIFICATION TANKS

Two Recent German Devices—The Kessel, Operating by Siphon Action—Separator or Sedimentation Tank of High Efficiency

Two of the latest devices for the separation of suspended matter from sewage, both of which originated in Germany and one of which has been adopted for an English plant, illustrate some novel structural details for utilizing well-known principles. One of these is known as the Kessel, the name probably being derived from the boiler-like shape of the apparatus. The other is a device for minimizing velocity and uniformly distributing the area of flow over a sedimentation tank.

The main structural feature of the Kessel is a vertical cylinder with an inverted cone-shaped bottom and a cone-shaped or domed top. This cylinder or tank is supported above the level of the sewer and must be perfectly air tight, flow through it being secured by siphonic action. The crude sewage is discharged into an inlet chamber, from which a pipe rises through the bottom cone into the tank. The bottom of this pipe is below the flow line of the sewage and its upper end terminates immediately over the center of the inverted cone, the end of the pipe being so shaped as to deflect the heavier solids toward the bottom. On the opposite side of the Kessel is another chamber for receiving the effluent, and from this extends a pipe which also passes through the inverted cone and up the center of the tank to near its top, where it ends in a covered inverted cone, the greatest diameter of which approximates the internal diameter of the tank, the inlet to this cone being through a narrow slot around its circumference and immediately below the cover. This pipe also is trapped at the bottom by extending below the flow line of the effluent. Another discharge pipe, marked "discharge pipe for gas and fat," terminates in a small cone-shaped



SECTION OF KESSEL CLARIFICATION TANK

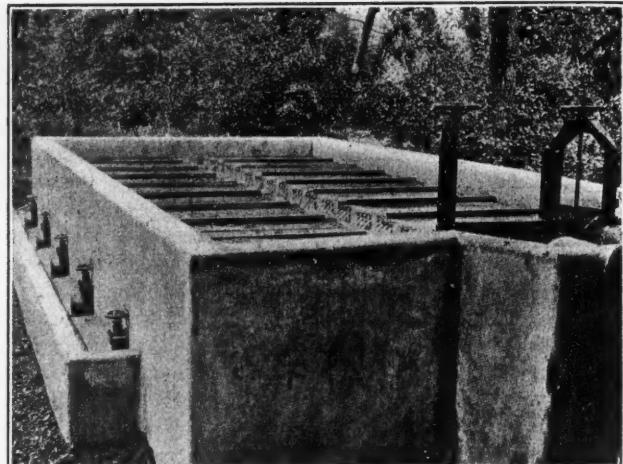
mouth directly below the center of the domed top. This pipe leads to a vat or other tank for receiving fats and similar floating matters, and serves, not only for removing these, but also for blowing off gases or accumulated air. Still a fourth pipe leads from the bottom of the tank to a deposit chamber which receives the sludge. Each of these is provided with a valve.

To begin operation, the tank is filled with water by means of a pipe leading from the water main and connected to one of the pipes already mentioned, above its valve; the valves in all except the "gas and fat" pipe being meantime closed. All the tanks are filled with water or sewage in order to seal the traps. The valves in the inlet and outlet pipes are then opened. The effluent outlet is made 2 or 3 inches lower than the sewer inlet to furnish head for the siphonic action. Under this action the liquid flows out through the long outlet pipe and is drawn in through the short inlet pipe. The sewage coming through the latter rises slowly through the tank, the heavier particles being at once deflected toward the bottom of the inverted cone. The size of the tank is so proportioned as to secure a velocity low enough to permit the suspended matters to settle to the bottom. Those which are lighter than water rise into the domed top, where they collect. The liquid, freed from all of these, passes through the slots in the inverted cone at the top of the outlet pipe, and so to the effluent chamber. From time to time the valve in the fat and gas blow-off pipe is opened, the valves in the other pipes having first been closed, and the valve on the water connection is opened producing pressure which blows the fats, gases and air through this blow-off. The heavier matters, which settle to the bottom, fall through the deposit pipe into the deposit chamber, from which they are removed whenever desired, preferably every day or two. It is a curious fact that as the deposit chamber fills with solids, the liquid carried with these passes upward through the same pipe and consequently the material may be left in the chamber until it becomes as solid as is desired. The vertical flow is generally designed to be from $1\frac{1}{4}$ to $2\frac{1}{2}$ inches per minute. The height is limited by the practical lift of air pressure and should, therefore, be not more than, say, 25 to 30 feet from the top of the level of the sewage in the sewer. A Kessel 30 feet in diameter will treat a flow of from 25,000 to 50,000 gallons per hour. (This is approximately the maximum rate of flow equivalent to 250,000 to 500,000 gallons per day.)

It is said that one of these tanks has removed 75 to 90 per cent of suspended matter from paper factory waste water, 99.7 per cent of the solids in suspension and 99.6 per cent of the fat from slaughter house refuse, and 70 per cent of the suspended solids from domestic sewage. It is stated that over a score of these are at work in various parts of Germany and as many more in the course of erection.

It is evident that the same result could be obtained without constructing an air-tight tank, by making the whole tank in excavation and allowing the sewage to enter by gravity, the only change in constructing then being that the inlet pipe would pass down from the top and have its outlet at a point near the bottom, and that the outlet pipe would leave the tank at a point nearer the top rather than at the bottom. The difficulty of constructing and maintaining a large tank so as to be absolutely air tight would, we fear, be found to be one of the great difficulties connected with this appliance.

The other appliance is really a small sedimentation tank. The sewage first passes into a shallow grit chamber, where are held back the heavier matters and also the lighter floating particles, this being assisted by the location of the outlet of the chamber at a point below the surface of the sewage. The principal feature of this sedimentation tank or separator is the method by which the effluent is removed. Instead of leaving by a pipe or a weir extending the width of the further end, the effluent overflows into a series of channels placed across the tank parallel and a short distance apart with their upper edges on an exact level. The channels then act in a manner similar to the wash-water troughs used for removing wash water from rapid sand filters in the latest constructions, such as we have described during the past year. The flow from the



SEPARATOR FOR 30,000 GALLONS AN HOUR

tank, therefore, occurs over what is practically a considerable number of weirs distributed over the entire surface, so that the final motion is a vertical one occurring over the entire area of the tank and the velocity of any one weir is, therefore, correspondingly low. It is said to be so low, in fact, that the most finely divided solids are not carried over into the troughs. In larger plants the tank is divided into sections to make more certain the uniformity of flow throughout the area. The illustration shows a tank of this kind, having outside dimensions of 18 by 33 feet, which is claimed to be capable of clarifying 30,000 gallons per hour of ordinary sewage. The right-hand half of the tank is seen to be discharging water from a considerable number of channels or troughs, of which there are about 80 in each half, the discharge flowing into a channel constructed between the two halves of the structure. For continuous work, like sewage treatment, the separator should be constructed in duplicate so that the sediment may be removed at frequent intervals without interrupting the operation. This cleaning should take place at least once a day. As the sediment is so fresh when removed, it is correspondingly liquid. The supernatant liquid is generally drawn off before the removal of the solids. It is claimed that a total capacity of a half-hour's flow of the maximum volume to be dealt with is sufficient for effective working.

Besides plants in Germany, one of these separators has been built at Dorchester, England, the sewage from which town, about 450,000 gallons a day, is at least 25 per cent brewery refuse. This separator is divided into four compartments, one being emptied daily while the other three are in operation, each compartment, therefore, being emptied once in four days. The grit chambers here remove four or five tons of stiff sludge a day, the separator three-fourths of a ton, and the effluent from these is further treated in an old septic tank used as a sedimentation tank, where two or three tons additional of sludge a day are removed. It is stated, however, that the insufficient operation of the separator in this plant has been overcome in later installations, making use of a final sedimentation tank unnecessary. It seems probable that in this, as in other inventions in sewage disposal, too much confidence has been placed in the quantitative efficiency of the apparatus, and the tanks have been made too small. A tank of twice the size indicated would still have much to recommend it and would probably give much better results.

TO PURIFY THE OHIO RIVER

THE Ohio River Sanitary Commissions of Ohio, West Virginia and Kentucky and the State Boards of Health of Pennsylvania and Indiana met in Columbus, O., on December 1 to make a beginning in a joint movement to stop the pollution of that river—a movement initiated by Dr. C. O. Probst, of the Ohio Board of Health. At this meeting the gross pollution of the river was described definitely and in detail, and unity of action to prevent further pollution was urged.

RESULTS OBTAINED BY STATE HEALTH BOARDS

What Pennsylvania and New Jersey are Doing to Purify Their Streams—Official Statements of What the State Laws Authorize, and in What Way and to What Extent They Are Being Enforced

By SAMUEL G. DIXON,

Commissioner, Department of Health, State of Pennsylvania

It is against Pennsylvania law for any individual or private corporation to discharge sewage or permit sewage to be emptied into any of the waters of the State. Under the law, the waters of the State include all streams and springs, and all bodies of surface and of ground water, whether natural or artificial, within the boundaries of the commonwealth. Sewage from sewer systems owned and maintained by municipal and public corporations may be permitted to flow into State waters under conditions which shall be unanimously agreed upon by the Governor, Attorney-General and Commissioner of Health.

In administering this law, the campaign, for such it is, is directed against the danger to public health from pathogenic organisms. Trade wastes and mine drainage in many instances are helpful in killing the sewage poisons in the stream, and until the sewage shall have been eliminated such wastes are a protection to public health rather than an injury, because of the germicidal action they exercise upon the sewage organisms with which they come in contact in flowing waters. The conservatism of the State Department of Health in administering the law to protect public health has not met with the approval of some riparian owners and especially the sportsman contingent; hence, to protect fish life in streams, great power has been placed in the hands of the Fish Commissioner to prevent stream pollution and in the enforcement of this new law, passed by the Legislature of 1909, industrial wastes are being ordered to be taken out by the Department of Fisheries. I wish to emphasize that this is done not because of the injuries these wastes in the streams produce upon public health, but because they may kill fish. The dividing of administrative authority in the preservation of the purity of the streams of the commonwealth has caused some misunderstanding which His Excellency, Edwin S. Stuart, Governor of Pennsylvania, is endeavoring to overcome.

With respect to the discharge of sewage into public waters it is not practicable in some instances to bring about the immediate erection of sewage treatment plants; principally on account of lack of funds, and, secondly, on account of the lack of adaptability of existing sewer systems to the application of sewage works. Many Pennsylvania towns are growing rapidly and up to the time of the establishment of the new State Department of Health some of them, in fact many of the towns, had not adopted comprehensive sewerage plans and were not extending their sewers from year to year in conformity with any wise method of procedure. Now all of this extravagant and wasteful expenditure of public funds is being rapidly stopped. During the next few years the greatest work which the Department of Health will do relative to sewerage will be in bringing about the laying down of all sewers that are built in conformity with comprehensive plans adapted to the ultimate treatment of the sewage. Then municipal authorities must arrange financially for securing such treatment later.

There are instances on small watersheds, where the water of a stream farther down is a source of supply to another municipality, where the interests of public health demand that the sewage shall cease forthwith to be discharged untreated into the stream; and in these instances immediate erection of sewage disposal works are required or the sewers must be abandoned and the individual householder must devise some way of disposing of the wastes on his property to obviate any injury to his neighbor.

For quick results in protecting the public health, the filtration and purification of the water of sewage polluted streams, where such water is supplied to the public for drinking purposes, is relatively more important as the first achievement than the erection of sewage disposal works. It is the policy of the department in Pennsylvania to hasten the erection of water purification plants; but the law limits the power of the Commission.

By H. M. HERBERT, Chf. Engr.,

Div. of Surveys and Water Supplies, New Jersey Board of Health

THE laws of New Jersey confer upon the State Board of Health almost unlimited and absolute power over the pollution of the waters of the State, but, like laws of this kind, the enforcement sometimes meets with strong opposition from parties (both municipalities and individuals) who have been using the streams for years past as a convenient method of removing their filth from their own doors. Laws of this character have to be administered with the utmost discretion, and the ordinary procedure is to summon the parties found to be polluting a stream before the board and endeavor to have them willingly correct the evil. If they refuse, a reasonable time is given them in which to comply with the board's orders; at the expiration of which time, if the cause is not removed, the case is placed in the Court of Chancery.

Authority is given the State Board of Health to abate pollutions by three laws and their amendments. These are what are commonly known as:

1. "The Potable Water Act," chapter 41 of the Laws of 1899, which forbids any person or municipality placing in or discharging into the waters or placing or depositing upon the ice or placing or suffering to remain on the banks of any stream, river, lake, etc., any excremental matter, domestic, factory, workshop, mill or slaughter house refuse, creamery or cheese factory waste, garbage, dyestuff, coal tar, sawdust, tan bark or refuse from gas houses or other polluting matter above the point at which any municipality shall obtain its water supply.

2. "The State Sewerage Act," chapter 72, of the Laws of 1900, which makes it unlawful for any person, corporation or municipality to build any sewer, drain or sewerage system from which it is designed that any sewage or other harmful and deleterious matter shall flow into any of the waters of this State unless the plans for same have been approved by the State Board of Health.

"Waters of the State" are defined as the ocean and its estuaries, all springs, streams and bodies, or surface or ground water, whether natural or artificial, within the boundaries of this State or subject to its jurisdiction.

It further authorizes and empowers the Board to inspect any of the waters of the State, and if it finds said waters are being polluted in such manner as to cause or threaten injury to any of the inhabitants of the State either in health, comfort or property, it shall be its duty to notify any person, municipality or private corporation found to be polluting said waters that prior to a time to be fixed by said board, which time shall not be more than five years from the date of said notice, that they must cease to pollute said waters and make such other disposition of the sewage or other polluting matter as shall be approved by said board. The party notified may appeal from the decision of the board to the Court of Chancery at any time within three months from the date of the notice.

3. "The Oyster Bill," chapter 264, of the Laws of 1909, which is as follows:

No excremental or other polluting matter of any kind or character whatsoever shall be discharged or placed in the waters or be placed or suffered to remain on the banks of any stream, the bed of which is or shall be used for the planting and cultivation of oysters or clams, if such excremental or other polluting matter so placed or discharged into such stream, or placed or suffered to remain on the banks of such a stream, will tend to corrupt and impair the quality or wholesomeness of the oysters or clams growing on the bed of said stream. * * *

The word "stream" as used in this act shall be taken to include and mean all bodies of water in this State, or constituting a boundary between this and any other State, irrespective as to whether such water be fresh or salt; provided, the bed of any such stream shall be used for the planting and cultivation of oysters or clams.

The above laws apparently cover all cases which have thus far needed attention. Although the State Sewerage Commission act was originally passed for the benefit of the Passaic River, yet by a strange perversity of fate that territory is now entirely removed from the jurisdiction of the State Board of Health, in so far as the streams are concerned, and this body is in no way responsible for its present unsanitary condition. The policy of the board is to allow no new sewerage systems to be built unless provided with some method of purification, the degree of which is governed by the water into which the effluent is to be discharged. An exception to this rule was made in the cases of two small boroughs which intend to discharge raw sewage into the North River opposite New York City. It was deemed unadvisable to compel a small municipality to go to the expense of treating its sewage so long as New York continued to increase the volume of its sewage without attempting treatment of any kind.

Regarding sewerage systems which were in use at the time of the passage of the sewerage law, the board is compelling these to install purification plants as rapidly as necessary. It was found that the seaside resorts which discharged raw sewage into the ocean created a nuisance upon the bathing beaches by the floating fecal matter which, under certain conditions of the wind and tide, returned to the shore. Two years ago these places were ordered to cease to pollute the ocean, and as the result at the present time, all the systems between Long Branch and Bay Head have been provided with sedimentation or septic tanks, with outlets carried to deep water 800 or 1,200 feet from shore, and these are working very satisfactorily. Along the southern seacoast all the municipalities, including Atlantic City, discharge their sewage into the bays or thoroughfares, as they are locally called. These are large bodies of salt water, having many outlets into the ocean, and the water is constantly flowing through them.

Owing to the fact that shell fish are taken from these waters, it was decided that a further treatment of tank effluent was necessary, either of sterilization or some other approved treatment. Already one town has installed a sterilization plant, and Atlantic City has submitted plans for similar treatment for a part of its sewage.

Where sewers discharge into small inland streams whose outlets are near the oyster grounds, a good chemical effluent with low bacterial count is required.

Of course, where an effluent is discharged into a water supply the best results obtainable are demanded. The board, however, advises that all surface supplies should be filtered before the water is served to consumers.

The Delaware River, being an interstate stream from which many water supplies are obtained, and in the lower part of which large shell fish beds are located, presents rather a difficult problem, but the health departments of Pennsylvania, New York and New Jersey are working in harmony, and good results are being obtained.

Wherever minor pollutions, such as sewers from private residences, creameries and factories, are found they are ordered to immediately cease to pollute. In these cases either cesspools or small purification plants are installed. A large number of these latter are now in use throughout the State, local conditions governing the method used. For creamery wastes, precipitation with lime is found to give good and economical results. Over one thousand cases of minor pollutions have been acted upon recently.

Throughout the State there are fifty-six public sewage disposal plants now in operation, six more plants are under construction, and twenty-five municipalities under orders to install plants within the next four years. In round numbers, about 50 per cent of the sewerage systems already have some form of disposal system in operation, with 25 per cent more in various stages of preparation. This work has been accomplished in nine years, and it is only reasonable to suppose that within the next ten years this State will have removed all sewage pollution from its streams.

PAVEMENTS AND GRADE LIMITATIONS

Kinds of Pavements Which Have Been Found Satisfactory for Specified Grades in New York City— Costs of Construction

By S. C. THOMPSON, Engineer of Highways, Bronx Borough, New York

Paper read before American Society of Municipal Improvements

One of the propositions which confront the engineer in determining the most desirable pavement in any given instance is the deciding as to which can be used to the best advantage on the various street gradients. If it were possible to consider the pavements as an abstract proposition, without paying any attention to the economic conditions, the solution of the problem would be much simplified.

In the section of Greater New York to which the writer's experience has been mostly confined for more than a quarter of a century, nearly all conditions as to inclination, angles of intersecting streets, location of grade points, drainage inlets, etc., have been met and their relations considered, so that a general rule of determination has been made, although modified by the circumstances arising in each particular case.

The street system of the borough contains streets and avenues varying from 40 feet to 120 feet in width, with roadways, as prescribed by a general ordinance of the city, from 20 feet to 76 feet in width, and with gradients from a fraction of one per cent as a minimum to a maximum of about 18 per cent.

The roadways as at present prescribed are for

Streets, 40 ft. wide; 20 ft. roadway			
" 50 "	24	"	"
" 60 "	30	"	"
" 70 "	34	"	"
" 80 "	42	"	"
" 100 "	60	"	"
" 120 "	76	"	"

Modifications have been proposed for adoption by the Board of Estimate and Apportionment which somewhat change the above widths; they will be affected by the existence of a street railway with single or double track in the same. (See MUNICIPAL JOURNAL AND ENGINEER for October 13, 1909.)

The kind of pavement economically available is another important factor in determining what should be used; and where the choice is virtually unrestricted, in so far as availability is concerned, a more careful adaptation can be made.

Sheet asphalt pavement is usually limited to streets where the gradient does not exceed 3 per cent and the specifications, besides the general chemical and physical requirements, place considerable stress upon the penetration and ductility tests; and it might almost be premised that any asphalt cement complying with the requirements in these particulars will make a serviceable and satisfactory pavement.

A close binder not less than one inch in thickness on a foundation of 5 inches of 1:3:6 Portland cement concrete is used as a foundation for the wearing surface. Formerly, some pavement was laid on old stone block pavement as a foundation, but this has proven unsatisfactory, and the laying of asphalt on this kind of foundation has been discontinued.

No sanding of the surface during the maintenance period (five years) is required. At the present time no guarantee is required within the railroad area.

Wood block pavement 4 inches deep, 3 inches wide and 8 inches long, treated with a waterproofing antiseptic oil of a specific gravity of not less than 1.12 at 38 deg. C., and losing not more than 35 per cent when heated 315 deg. C., is specified.

The woods at present allowed are long-leaf yellow pine and black gum. The former is treated with 20 pounds per cubic foot of oil, and the latter with not less than 22 pounds per cubic foot. The absorption test is 3 1/2 per cent for pine blocks and 4 1/2 per cent for black gum. Some black gum recently

laid was treated with as much as 26 pounds of oil per cubic foot. This pavement is allowed on grades not exceeding 3 per cent and where there is sufficient traffic, and produces a durable, practically noiseless and sanitary pavement.

The required foundation is 4 inches of 1:3:6 Portland cement concrete, with $\frac{1}{2}$ -inch mortar bed (1:4), on which the blocks are laid. The joints are usually normal to the curb where practicable. Some trouble has occurred from expansion, more especially where a light oil has been used in the treatment.

Where an excessive amount per cubic foot of antiseptic oil has been used, it has rendered the surface very slippery, even upon slight gradients. Some of the pavement has been laid with a sand joint, some with a cement grout joint, and some with a bituminous filler, either squeegeed into the joints or poured from a pouring can with a special nozzle. Where a bituminous filler has been used the surface required sanding for a time. Where grout filler has been used expansion joints were laid along either curb.

Asphalt blocks are used on gradients not exceeding 6 per cent and up to this inclination answer the purpose intended very satisfactorily. They are composed of 6 to 11 parts asphalt cement, 89 to 74 parts crushed trap rock not exceeding $\frac{1}{4}$ inch in maximum dimensions, and inorganic stone dust 5 to 12 parts, in size 12 inches long, 5 inches wide and 3 inches deep. The specific gravity required is not less than 2.5. The absorption test for seven days is one per cent.

When properly laid these blocks make a very satisfactory pavement, while new plumber's openings and similar cuts are easily and satisfactorily repaired. Just what the results will be when repairs are attempted on a pavement which is worn down an inch or more, unless with blocks of decreased thickness, has not yet fully developed.

The blocks are laid upon a foundation similar to that used for the wood block pavement, and ordinarily with a sand filler. Joints are generally at right angle with the curb and intersections are herring-boned.

The asphalt blocks are laid under a five-year maintenance clause except within the railroad area, where at the present time no maintenance is exacted. Chemical, physical and ocular tests are made to determine the quality of the blocks before and during construction.

Vitrified bricks have been laid in a number of streets, but the wearing quality under the severe traffic of the thoroughfares has not proved satisfactory, and the larger part of the area so paved has been relaid with other pavement.

The brick pavements have been laid on a concrete base, with a sand bed and cement grout joints. For grades not over 4 per cent or 5 per cent they have proven satisfactory, so far as the gradients are concerned; but the rapid wearing and the noise have made them undesirable for the use intended.

Iron slag block pavement, $4 \times 3\frac{1}{2} \times 8$, has been laid on grades as steep as about 11 per cent, but it has not been received with favor by the teamsters. It is slippery on the grades, difficult to cut and lay properly, irregular in dimensions, and liable to break under ramming.

In this borough a concrete base 5 inches in depth is laid, and an inch of sand used to bed the blocks, this having been found more satisfactory than laying them on a mortar bed.

In one case, with a gradient of about 11 per cent, a strip 8 feet in width next the curbs was laid with asphalt block, and the balance of the roadway with the iron slag blocks. Repeated observation shows that teamsters drive down the asphalt block strips in preference to using the iron slag block.

Granite blocks are laid on nearly all of the steep gradients in the borough which have been paved. Gradients as steep as 13 per cent have been paved with blocks which are 8 to 12 inches long, 7 to 9 inches deep and 4 to 5 inches wide, laid on a 2-inch sand bed with sand joints.

Most of these pavements laid on sand beds are considered to be in a degree temporary, the final pavement in built-up sections having a concrete base, with bituminous or cement grout joints.

A granite block pavement made from old blocks dressed

with "new heads" has been laid in some cases, is giving excellent service and is fairly quiet. The requirements after recutting are 6 to 12 inches long, $3\frac{1}{2}$ to $4\frac{1}{2}$ inches wide, $5\frac{1}{2}$ to $6\frac{1}{2}$ inches deep, with a lap not less than 3 inches. The blocks are laid on a sand bed $1\frac{1}{2}$ inches deep, on a 5-inch concrete foundation. The joints are grouted full with Portland cement grout, and allowed to stand until well set before allowing traffic on them. Usual time allowed for setting, about 5 days. Expansion joints should be provided at the curbs. Made up in this way, the surface is comparatively smooth, but gives a good foothold for horses. Dressing granite blocks, while adding somewhat to the first cost of the pavement, more than saves this in the cost of maintenance and repairs, and results in reduced noise for traffic and less wear on vehicles.

Medina sandstone blocks have been laid to a limited extent, proving very satisfactory on grades, comparatively noiseless, wearing evenly without "turtle-backing," and affording a very good foothold for horses. The cost of this block in New York is considerably more than granite, and it has not been used to any considerable extent on this account. Sizes allowed are practically the same as granite. In the opinion of the writer this block, carefully cut and properly laid with a satisfactory foundation, comes nearer to the ideal physical requirements for a stone block pavement on grades than most other kinds.

While the foregoing embodies what is intended as a general proposition, there are quite numerous exceptions, from various causes.

Sheet asphalt has been laid with a gradient as steep as 4 per cent, but is slippery when wet or frosty. With block asphalt the steepest grade as at present laid for the full width of the roadway is 7 per cent. There is one street where these blocks are laid on side strips with a gradient of about 11 per cent. Most of the wood block pavements laid are under 3 per cent. With vitrified brick the maximum gradient laid is 5 per cent.

Granite blocks have been laid on gradients as high as 8 to 13 per cent. The maximum grade laid with iron slag block is about 11 per cent and the heaviest grade at present laid with Medina is only 5.5 per cent.

The cross-sections of the various pavements vary with the kind—the sharpest crown being used in granite and the flattest on sheet asphalt and wood block.

The mileage of each kind of pavement at the present time is:

*Trap	1.09	miles
Granite	36.68	"
Asphalt block	37.45	"
Sheet asphalt	38.04	"
Wood block	3.04	"
Iron slag	1.28	"
*Brick	0.92	"
*Medina	0.28	"
Total	119.14	miles

* None laid in 1908.

The average cost of furnishing and laying each kind of block by contract during the past five years is as follows:

Kind of pavement.	Average cost for 5 years.	Total No. of contracts.	Average cost for 1908.	Total No. of contracts, 1908.
Sheet asphalt	\$1.35	42	\$1.62	3
Block asphalt	1.74	101	1.77	30
Granite	2.49	40	2.63	14
Medina	2.87	...	...	...
Iron slag	2.68	5	2.75	3
Wood block	2.37	17	2.38	10

The cost given includes pavement only, without foundation other than sand cushion.

Average cost in 1908 of concrete used for foundation, etc., \$5.78 per cubic yard. Average cost for five years, \$5.18 per cubic yard.

COAGULATING PLANT FOR WASHINGTON

BRIG-GEN. MARSHALL, Chief of Engineers of the U. S. Army, recommends that the water works purification plant of Washington be supplemented by a coagulating plant for use during periods of unusual turbidity; the principle recently adopted for the Indianapolis and some other filtration plants.

DANGERS OF STREET DUST

Exposure to This Seems to Induce Consumption—Abstract of Bulletin of Bureau of Labor—Sprinkling or Flushing Recommended

THE annoyance of street dust, which is especially noticeable in cities having improved pavements, is apparent to all. The injurious results from it have been the subject of more or less investigation during the past few years, and the Bureau of Labor has just issued a bulletin which deals with the mortality from consumption in certain occupations and includes among these those involving unusual exposure to municipal street dust. Among these are employees of the street cleaning and refuse collection departments, and also drivers, teamsters and coachmen. The danger of subway dust also is considered. Mortality among drivers and teamsters may be due to unusual exposure and alcoholism, and, therefore, the influence of street dust upon it is indefinite. In the case of street sweepers and refuse collectors, however, there seems to be no such complication of causes, except that the latter may suffer from injuries received from lifting heavy ash barrels (in fact, street cleaning forces usually have a number of men laid off or on half pay on this account) and diminished disease resistance due to this necessarily increases the liability to tubercular or other infection.

The only statistics concerning street cleaning employees which the writer of this pamphlet found available were those issued by Greater New York. In this city, in 1904, 4,625 men were employed in the Street Cleaning Department, of which 2,686 were sweepers, 1,262 were drivers and the remainder were supervising officials and general labor. Assuming the same ratio of employees to citizens in other American cities of over 25,000 population, we have about 30,000 employees in 1909, of which 58 per cent are sweepers, whose employment predisposes particularly and continuously to the inhalation of more or less injurious dust, both inorganic and organic. Street sweepers often include a considerable proportion of old men, but the present tendency is to confine them to those between the ages of 25 and 50 years, a period much more susceptible of disease infection than older men, who, in a measure, have become immune to such infection.

This danger has long been suspected. Halfort, a German, in 1845, referred to such danger. Hirt, an Englishman, sustained this idea; and Sonnenkalb and Chrastina still earlier had reported that street dust in Leipzig and Vienna to be injurious to health. These conclusions were based largely upon the inorganic dust particles. In 1907 the *Medical Examiner and General Practitioner* stated that one-third of the street cleaners in New York were infected with tuberculosis, which was the more startling because every employee had been examined by physicians previous to his employment and pronounced free from organic disease. It was also said that there was less tuberculosis among sweepers of the West Side, where the streets were wider and better kept, than among the narrower and dirtier streets of the East Side. It was stated that the street cleaning force in Berlin showed the smallest morbidity and mortality from tuberculosis and other diseases of any class of that city's laboring population; which contrast to conditions in New York were attributed to the fact that in that and other European cities the streets were always sprinkled before being swept, while this was not the case in American cities. (This last statement applies especially to hand sweeping, we presume, since it is the common practice to sprinkle streets before machine sweeping.) There are few cities, however, where the white wings are provided with and use sprinkling cans in connection with their sweeping outfit.) In the New York *Medical Journal* for 1904 it was stated that five years' work as a street cleaner in New York was said to make the average individual a consumptive, in spite of the fact that upon employment he was supposed to be free from this or any organic disease. The *Medical Journal* continues:

"It is not the tubercle bacillus alone which renders our street cleaners consumptive, but it is the constant inhalation of all kinds of dust and the consequent irritation of the pulmonary surfaces, which makes the invasion of the germ of tuberculosis more easy. The sweeping of streets in the dry state should be considered as a crime against our fellowmen. It is not the air, but the dust in the air, which renders New York such a dangerous place, particularly in summer, to people predisposed to pulmonary troubles. While, as a natural consequence of being in closer proximity to the dust, the street cleaners are the first to suffer, the citizens at large who are obliged to remain in New York during the summer months suffer also to a considerable degree."

The action of street dust is further described by Dr. W. Gilman Thompson in the *New York Medical Journal* as follows:

"When thus atomized and inhaled it acts injuriously upon all the sensitive mucous membranes of the respiratory passages, partly through mechanical irritation and trauma and partly by conveying to them and imbedding in their folds a great variety of germs. These germs are not necessarily those of specific diseases such as the pneumococcus or bacillus tuberculosis, for such germs are known to be killed by conditions of prolonged exposure to dryness and sunlight, whereas moisture proves favorable to their longevity. But sufficient non-specific germs are conveyed by street dust to excite catarrhal or purulent inflammations, and by thus fostering a chronically diseased or irritated condition of the respiratory passages, the latter are rendered liable to more serious infections. The pulmonary tissue thus irritated invites an invasion of the bacilli to which the street cleaner, in his unsanitary tenements and other unhygienic environments, is as much exposed as anybody else."

The Bulletin concludes its discussion as follows:

There are no American official vital statistics of persons employed in street cleaning and refuse disposal, nor have the statistics of the large street cleaning departments of the principal cities been made public otherwise than in the report in 1904 by J. M. Woodbury, as Street Cleaning Commissioner of the City of New York. The industrial insurance mortality statistics for men in this group of employments for the period 1897 to 1906 include 180 recorded deaths, of which 33, or 18.3 per cent, were from consumption. Of the mortality of street cleaners from respiratory diseases other than consumption, 23 were from pneumonia, 8 from asthma and bronchitis, and 2 from other diseases in this group, a total of 33, or 18.3 per cent. If the deaths from consumption and from other respiratory diseases are combined, 36.7 per cent of the mortality of street cleaners was from diseases of the lungs and air passages. It is evident from the foregoing statistics that the recorded mortality from consumption among men in this employment is not decidedly excessive, but it must be clearly kept in mind that there is probably no occupation more subject to changes and from which the physically impaired are more rigidly excluded by occupation selection than in the street cleaning and refuse disposal service of large cities. The table which follows states in detail the consumption mortality of street cleaners by divisional periods of life, with the comparative proportionate mortality of the general population in the United States registration area during the period 1900 to 1906:

Proportionate Mortality from Consumption Among Street Cleaners, 1897 to 1906, Compared With That of All Males in the Registration Area of the United States, 1900 to 1906, By Age Groups.

[Figures for street cleaners from experience of an industrial insurance company; figures for males in registration area computed from mortality statistics of the United States census.]

Age at death.	All causes.	Consump- tion.	Street cleaners.	Deaths of street cleaners, 1897 to 1906, due to—	Per cent of deaths due to con- sumption among—	Males in registration area, 1900 to 1906,
				1897 to 1906, due to—	1900 to 1906, due to—	
15 to 24 years.....	..	..	..	..	..	27.8
25 to 34 years.....	18	8	44.4	31.3	31.3	23.6
35 to 44 years.....	37	13	35.1	15.0	15.0	8.1
45 to 54 years.....	47	7	14.9	6.7	6.7	2.7
55 to 64 years.....	45	3	6.7	..	..	..
65 years and over.....	33	2	6.1	..	..	..
Total	180	33	18.3	14.8	14.8	

While the preceding statistical data are not entirely conclusive, they would seem to confirm the conclusion, when taken in connection with the foregoing observations, based on a careful consideration of all the available facts and conditions, that street cleaners as a class are subject to health-injurious circumstances connected with their employment, and that the exposure to dust inhalation results in a comparatively high degree of consumption frequency at ages 25 to 44, inclusive.

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CHANGE OF ADDRESS

To insure the accuracy of our mailing lists, subscribers are requested to notify us of any change of address, giving both the old and new addresses.

It is further requested that our Subscription Department be notified if copies are not received promptly.

Readers are invited to contribute to the MUNICIPAL JOURNAL AND ENGINEER, either in the form of special articles or of letters discussing matters of current interest.

It is also desired that the facilities furnished by the reference library in this office should be widely known and freely used by those interested in municipal affairs. Visitors will be welcomed and provided with conveniences for search, and inquiries by mail will be promptly dealt with.

DECEMBER 8, 1909.

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Water Pollution, Street Dust and Sanitation

At no previous time has the matter of sanitation and public health assumed as much importance in public and official thought and action as it does to-day. Sewage and water purification, prevention of tuberculosis, inspection of milk and enforcement of pure food laws, compulsory protection from street dust of vegetables and other food matters exposed for sale—these and many other efforts to guard the public health are novel in the history of civilization. In this issue we publish

several articles dealing with these subjects. At our request Dr. Dixon, Commissioner of the State Board of Health of Pennsylvania, has written a brief statement describing what authority the State laws give to his Board looking to the protection of public water supplies, and what that Board is now doing, and contemplates doing, in carrying out their provisions. With this we have combined a paper read by Mr. Herbert, Engineer of the State Board of Health of New Jersey, before the American Society of Municipal Improvements, describing what the State of New Jersey is doing along the same lines.

Another article deals with the dangers of street dust to the health of street sweepers and in only a less degree to that of the community at large. The moral of this appears to be that "white wings" should be compelled to carry and use sprinkling cans for moistening all dust before it is swept up by them, and would seem to offer a strong argument in favor of cleaning streets by flushing or by some other method which removes the dust without stirring it into the air.

Creosote Treatment for Algae

MR. WM. F. WILCOX, manager of the Meridian, Miss., Water Works, has recently used creosote for destroying algae growths in water works reservoirs. Under recent date he addressed the Superintendent of Water Works of another city on this subject, in which he made the following statement:

I take the liberty of suggesting to you that you try the remedy which I am using and which is a rapid and inexpensive one. I have a reservoir which covers 23 acres. In the spring I place in this 100 gallons of creosote to each acre of surface, letting the creosote slowly enter the influent water at the inlet. From time to time during the summer, say at periods of one week to ten days apart, I add a water bucket of creosote; and if at any time I find any algae along the edge, I put creosote in those places. I have found that this remedy causes no after effect in the water and it has proven of great value to me in freeing our reservoir of algae and also of terrapin, frogs and snakes.

I think you will find this a very cheap and valuable remedy, and if you care to try it I would be pleased to have you advise me what results you obtain.

Mr. Wilcox states that he believes this remedy to be safe and much less expensive than the copper sulphate or other chemical treatments employed. Creosote costs about \$10 per barrel of 50 gallons at Meridian, and the material can be placed in the reservoir by inexpensive labor. It therefore costs about \$20 to \$25 per acre for the spring treatment, and possibly \$15 to \$20 additional for the entire reservoir during the balance of the season.

Expiration of Cameron Patent

THE following letter from the Cameron Septic Tank Company is self-explanatory:

Editor MUNICIPAL JOURNAL AND ENGINEER,
231 W. 39th St., New York City.

Dear Sir:

Referring to my recent letter, published in your issue of October 27th, page 627, regarding the Cameron patent, and the effect upon it of the recent opinion of Judge Archbald in the Hennebique Construction Company's case, I wish to call your attention to the fact that advance sheets of the Federal Reports just received give (at 172 Fed. Rep. 877) the full decision of the Court of Appeals, including the opinion of Judge Archbald from which I quoted, and I now find that the presiding member of the Court, Judge Gray, has amended his own opinion by adding thereto the following sentence expressing his full concurrence with Judge Archbald: "But, if it is called for in order to support our judgment, I may say that I agree with the views on the subject expressed in the concurring opinion of Judge Archbald." Thus Judge Archbald's views have become in effect the decision of the U. S. Court of Appeals, and establish the position that the Treaty of Brussels, when its ratification by Congress made it the law of the land, freed from the limitation of the prior statute the group of patents that includes the Cameron patent, and so irrevocably granted to the Cameron patent its full seventeen-year term, not expiring until Oct. 3rd, 1916.

I trust you will bring this to the attention of your readers as an important supplement to my previous letter.

Yours very truly,

CAMERON SEPTIC TANK COMPANY.

H. D. WYLLIE, General Manager.

November 26, 1909.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

Storm Cost City \$25,000

Duluth, Minn.—The total expenditure of the Board of Public Works for the street work thus far this year is \$108,306. The largest-sized item, \$24,947, represents the cost of repairing the damage done by a storm.

Policemen to Report Damage to the Streets

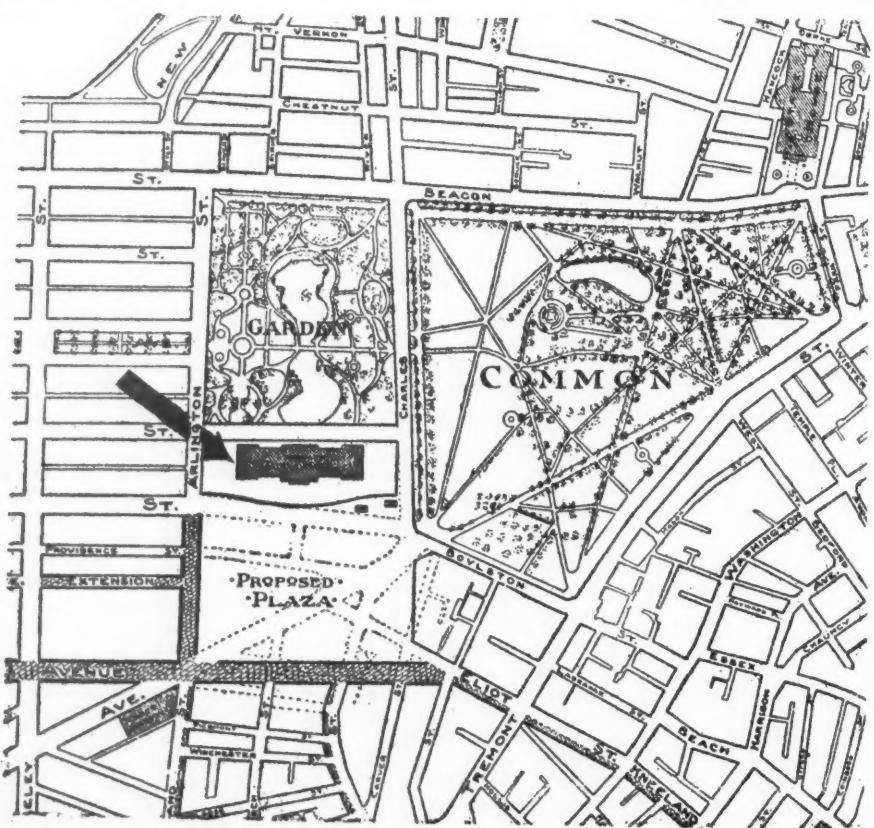
Jacksonville, Fla.—Acting in accordance to an ordinance passed by the City Council, Chief of Police W. D. Vinzant has issued orders to all police officers to report holes in the paved streets and damaged sidewalks, which will help the city officials in making needed repairs to the bad streets.

Brick Gutters in Place of Cement

Pasadena, Cal.—Brick gutters, instead of cement for all of the business section of the city may be recommended by City Engineer Samuel J. Van Ornum if some samples of paving brick which have been submitted to him come up to his expectations. Heretofore, he states, there has not been a really satisfactory vitrified brick for paving purposes, but a brick has now been gotten out by a Los Angeles concern, which is unusually large and unusually hard and which costs \$22 a thousand, which is not considered very high. Downtown gutters have always been something of a problem in Pasadena, being quickly broken and put out of commission. A year or more ago some brick gutters were laid, but since that nothing has been done with them.

Object to Use of Old Brick

Pensacola, Fla.—The use of old vitrified brick proposed for Palafox street is opposed by the property owners who think that the appearance of the street would not be in keeping with that of the cross streets, which are now being paved with wood blocks. The bricks in question have been in use for eighteen years and can hardly be expected to make as handsome a street as new ones.



CIVIC CENTER FOR BOSTON, MASS. ARROW POINTS TO PROPOSED CITY HALL

Proposed Civic Center for Boston

Boston, Mass.—In the architectural exhibit of the 1915 exposition is a plan for a civic center made by James J. Ball of the Fire Department, which has attracted much favorable comment. Mr. Ball would place a magnificent City Hall in the Public Garden centrally located on a strip taken from the Garden from Boylston street to Newbury and from Arlington to Charles. Newbury street would be extended to Charles; the City Hall would front on Boylston street and face a great plaza that would include Park Square, the property between Park Square and Boylston street down as far as Arlington street, the latter street to be continued to Ferdinand street, making a necessary connection and artery between the northwest and the southeast part of the city. The plaza would also take in some property on the southeast between the corner of Ferdinand street and Columbus avenue to a point near the northern junction of Carver and Eliot streets. The next most important feature of the plan is the cutting of a new street or avenue from the bridge over the Albany Railroad at the junction of Huntington avenue and Irvington street in a straight line to the corner of Eliot street and Carver street, passing behind the old art museum and over the railroad land on which the Tech buildings are situated, across Berkeley street. This new avenue would connect the Back Bay, Brookline and other suburbs directly with the South Station through Eliot and Kneeland streets, both of which streets Mr. Ball proposes to widen. In addition to this new avenue, Mr. Ball proposes to extend St. James avenue from Berkeley street to the new Arlington street extension, striking the plaza near the center. He proposes to sink the subway and bring one end of it out beyond Copley Square, and have stations near Charles street and near the City Hall, in the new plaza. Mr. Ball would widen a part of Pleasant street and, incidentally, this, with the new thoroughfare to Eliot street, the extension of Arlington street to Columbus avenue and the widening of Ferdinand street, would be the means of improving a section of the city which has been drifting more and more into decay and degradation for years—property which is practically in the center of the city. These changes would make the vicinity of Park Square the civic center of the city, but they would not interfere in any way with the large existing business interests. They would improve these latter through ampler means of communication and develop a section that needs developing.

New Bidding Methods

Toledo, O.—A situation has developed that may result in a change in the method of bidding for street and sewer work. Contractors have had a habit of bidding on only the most important items of a certain piece of work, making no bids at all on the less remunerative details, or filling them in at a nominal figure. By an opinion rendered for the Service Board by the City Solicitor, according to which the whole or any part of a contract may be enforced against one or several bidders, this method is likely to be abolished. The result of the kind of bidding that has been in vogue is shown on the recent bids on Broadway, where one contractor is low for the work between the rails and another is low for the distance outside the rails, chargeable to the property owners. The solicitor has ruled that the contract may be legally divided between the bidders, and that it would be enforceable under the bond.

NEW JERSEY SEEKS BETTER ROADS

Asks Government Assistance in Framing Bituminous Road Specifications—County Engineers to Collect Data

Trenton, N. J.—State Road Commissioner Frederick Gilkyson has arranged for a conference at Washington with Provost Hubbard, chemist in the office of the Bureau of Public Roads, and an expert on asphalts, the purpose of which is to devise a road-building specification that will permit the building of bituminous roads, permit competitive bidding and not infringe on patented road preparations. The Commissioner has decided to pave all state roads hereafter with bituminous materials and the following companies have put materials on the market designed to meet the requirements: Warren Brothers Company, Filbert Paving and Construction Company, Barber Asphalt Paving Company, Delaware Paving and Construction Company and the Amiesite Company.

State Road Commissioner Frederick Gilkyson has also recently inaugurated a plan for getting information from all the County Engineers in the State that may be used to give greater uniformity and efficiency in building and repairing improved roads. Colonel Gilkyson sent a letter to each County Engineer asking that in consideration of prospective road improvements to be made throughout the State during the coming year the engineers send him any information or data they think would be of interest, treating the various methods of construction and repairs specifically and commenting on them briefly. Commissioner Gilkyson stated in the letters that it was the wish of the department to have the benefit of the experience and knowledge gained by the engineers in the use of oil, tar or other road building materials.

Better Roads Here Than in Europe

Trenton, N. J.—George W. Cooley, State Highway Engineer of Minnesota, just home from a tour of inspection of the roads of Europe, recently inspected more than one hundred miles of New Jersey roads as the guest of Colonel Frederick Gilkyson, State Road Commissioner. Mr. Cooley expressed himself as delighted with the highways, declaring that they compared very favorably with the famous roads of Europe, being, in fact, better than most of the latter, with the exception of the famous road from Berlin to Potsdam, which is being built at an outlay of \$200 a foot.

Arcade Sidewalks for Pittsburg

Pittsburg, Pa.—The Mayor, his official family and experts are engaged in formulating a new plan of arrangement of the downtown streets. More street room is needed, and when former Mayor George W. Guthrie returned from Paris and told what he saw the city officials concluded they had the proper solution. They now propose to abolish sidewalks, extend the streets to the edges of buildings and cut room for a sidewalk into the buildings. The arcade offset will be about 10 feet in width and the buildings will be supported by iron pillars. The idea was first presented by George Westinghouse, who places importance on the fact that women can shop during rainy days without going outdoors.

City Asphalt Plant Saved Money

San Francisco, Cal.—A report on the operations of the municipal asphalt plant for seven months shows that 1,191,396 square feet have been paved at a cost of \$125,603.02. If the work had been done by contract it would have cost at the prevailing rates, \$196,580.34. It is estimated that the city has saved \$70,977.32 by establishing the plant.

Needs a Million for Asphalt Repairs

Philadelphia, Pa.—Director of Public Works Stearns, in asking Council for an appropriation of \$250,000 for repairs to asphalt streets, declared that fully \$1,000,000 would be required to properly repair the streets which have not been properly taken care of because of lack of appropriations.

Office of Sidewalk Inspector Created

Hutchinson, Kan.—Hereafter all contractors or builders of cement or concrete walks in the city of Hutchinson, must take out a license from the city, and must pay a sufficient sum for permits to pay for a careful inspection of such walks, as they are under construction, by the Sidewalk Inspector, an official newly appointed under an ordinance creating the position.

SEWERAGE AND SANITATION

Texas Sanitary Code in Doubt

Austin, Tex.—The sanitary code prepared by the State Board of Health and submitted to the Governor has been referred to the Attorney-General's Department, where it has been for many weeks. A legal problem has arisen as to whether the law authorizing the Board to adopt a code was not a delegation of legislative functions and therefore unconstitutional. The Board makes rules and violations are punishable. The Attorney-General may take the ground that this is legislation.

Tuberculous Cows Branded

Chicago, Ill.—The new order of the Health Department, which provides for the branding of all tuberculous cows has gone into effect, together with other important sanitary regulations, intended to put a stop to the traffic in such cows and the sale of milk from them in Chicago. Under the new regulation all cows must be subjected to the tuberculin test and the result, whether of a positive or negative character, reported to the State Veterinarian for approval, will be branded upon the right ear of the animal.

Street Signs for Spitters

Chicopee, Mass.—The Board of Health has planned a novel way of reminding the residents of the ordinance against spitting on the sidewalks, which it is believed will help materially toward the observance of the regulations. Accepting as probable the supposition that the majority will be glad to obey the ordinance once it is brought to their attention, the board has secured signs plainly lettered with the regulations against spitting on the sidewalks. These will be posted, with the street signs, in prominent places as soon as the new signboards are put up. The method of posting them in prominent places in mills has already brought good results, and there seems no good reason why if several are placed at street corners they would not have a good effect.

Move for Municipal Abattoir

Dayton, O.—A movement for a municipal abattoir has been started as a climax to the exhaustive report made by Dr. J. Morton Howell, President of the Board of Health, on the results of his trip east, and of some of the slaughtering conditions he is acquainted with in Dayton. He pointed out that the situation was a grave one, that there are as many million of tuberculosis germs in the meat being sold in Dayton as there used to be in the milk. He emphasized the fact that there is only one way to cope with the condition, and that is to fight it on the same ground as the milk nuisance was and is now being done. He referred to but three Government inspectors looking over meat in Dayton, and showed how every animal butchered would be so inspected if there was one large central slaughter-house. The Department of Agriculture had approved the plan and would furnish the inspectors, Dr. Howell said, if Dayton builds the abattoir and compels the butchers to use it. In this connection, Assistant Solicitor Walter Snyder stated that if local butchers refused to act in harmony with the Board in having their meats tested through the municipal regulation, that the Legislature in January could be appealed to for special legislation.

Consumptives May be Barred From Schools

Indianapolis, Ind.—In connection with the medical inspection to be held in the public, private and parochial schools, beginning January 1, the City Board of Health probably will advocate that teachers and children suffering from tuberculosis be excluded from the schools. Before any action is taken by the Board on this question, it will be submitted to the Board of Public School Commissioners and an advisory committee of teachers and principals. Dr. E. D. Clark, President of the Health Board, said the tuberculosis question had already been discussed, but that no action had been taken. He said it was a matter that should be submitted to the School Board and to the teachers themselves. Should tubercular children be excluded from the schools, it is probable recommendations would be made that they devote their attention to getting well, instead of to study, until some chance had been given for their improvement.

WATER SUPPLY

Water Famine in Springfield, Mass.

Springfield, Mass.—Several manufacturing plants in this city, including the United States arsenal, were forced to suspend operations December 1, 5,000 men were thrown out of employment and the water supply of 45,000 persons, or more than half of the city's population, was shut off as the result of a water famine. An attempt was made to connect the mains with lakes and ponds outside the city, and it was expected that in a day or two there would be enough water for domestic and industrial necessities.

Filtered Water at Fort Myer

Fort Myer, Va.—Great success is attributed to the new American mechanical filtration plant that has been installed at Fort Myer, across the river from the National Capital. It is capable of providing in sixteen hours' run a supply of 250,000 gallons of water. This is sufficient for twenty-four hours for a population of from 2500 to 3000. The water is practically sterilized, and it is the common practice of surgeons in the hospital at Fort Myer to use it in experiments and in surgical work without further sterilization.

Water Works Closed Down

Greenville, Tex.—The water works plant has been closed down entirely, and the remainder of the water in the reservoir will be kept for fire protection. The plant has been furnishing water to the patrons only one hour each day for the past month or two. The rains which have fallen have not been sufficiently heavy to put any water in Sabine River, and from the river water has to be pumped into the large reservoir.

City to Control all Water Mains

Minneapolis, Minn.—In the future the city will exercise control over all private water mains laid in the streets. This has been decided by the Council Water Committee. It has been the custom to grant permission to individuals and corporations to lay private mains in streets where no city mains exist. It often happens that others desire to connect with these private mains by paying a portion of the cost, and when the owner refuses to grant such a request the city has no power to force such action.

Clear Water for Richmond

Richmond, Va.—After wrestling with the water problem for over half a century and expending many thousands of dollars, with the beginning of the new year Richmond may have drinkable water. The building of a settling basin, the construction of a flume of more than a mile in length and the installation of new pumping machinery, all of which has been in progress for the last six or eight years, are about completed. Supt. Davis of the water department is confident that the work will be rushed to completion at once, the flume being the last thing to receive attention. The total cost of the basin, the flume and the additional machinery has been close to a million dollars, but when it is finished the city will have clear, fresh and pure water for all purposes.

Suggests Change as to Lowering Mains

Tacoma, Wash.—Water Superintendent H. A. Whitney is trying to devise some scheme to lighten the burden on property owners occasioned by assessment work in districts where water mains are installed by private contract. In most of the newer sections of Tacoma the first mains are laid by private contract. Later, when the city grades the streets in which these mains are laid, the pipes usually have to be lowered or raised, thus causing added expense. The Water Department claims that the lowering of pipes should not be paid for out of the water receipts, as has been the practice. Instead, he suggests in a letter sent to Commissioner of Public Works H. J. McGregor, that the expense be borne by the general fund.

Taunton to Sell Water to Adjoining Town

Taunton, Mass.—A proposition that the water supply be extended to Dighton has been presented to the Taunton Council and favorably considered. Water has been lately supplied to that town by a private company which obtained water from an artesian well, but the quality of the water is not satisfactory. Taunton is to receive 15 cents per

1000 gallons for water sold to consumers in Dighton and an annual sum amounting to one-tenth of one per cent upon the assessed value of all real estate within 500 feet of the water pipes in the town. Any damages that may be received against Taunton in consequence of the service is to be paid by the private company.

STREET LIGHTING AND POWER

Best Lighted City in the United States

Columbus, O.—Columbus is the best lighted city in the United States, according to Herman Gamper, Superintendent of the City Light Plant. Mr. Gamper says that figures will prove his assertion. For instance, Columbus has a population of approximately 200,000, and is lighted by 2400 arc lights and about 40 street arches. The city of Cincinnati, with a population nearly twice as large as Columbus, has only 3500 lights, so far as can be ascertained, says Mr. Gamper. To be proportionately as well lighted as Columbus, Cincinnati would have to have at least 4800 arc lights. Again the city of Detroit which claims to be nearly twice as big as Columbus, has only about 3500 arc lights.

Municipal Plant is Disappointing

Grove City, Pa.—A deficit of \$1,433.11 in the municipal electric lighting plant at Grove City has resulted in the discharge of the Street Commissioner and a policeman, although the borough authorities are not discouraged over the poor showing for the first year of municipal ownership, for they say they expected it. The town has cheap gas, and residents are slow in adopting electricity. The cost of the plant, which was installed in October, 1908, was \$25,000, on which the borough pays 5 per cent interest. The expenses last year, including 5 per cent depreciation, were \$5,990.10, and the receipts \$4,556.99. The borough itself paid the plant \$3,600 for 60 electric lights.

Mayor Would Condemn Gas Property

Minneapolis, Minn.—Mayor James C. Haynes, in a message to the Council Gas Committee, disapproves of a proposed ordinance for the extension of the franchise proposed by the Minneapolis Gas Light Company, urges that negotiations with the company be terminated at once and that condemnation proceedings under the eminent domain law be begun to determine the value of the plant. He believes that the value of the plant is about \$3,500,000 and that \$2,500,000 of the capital is water. The company's offer covered the following points:

Price—Gas to the consumers at 85 cents per 1,000 feet; to the city, 65 cents. Present prices, \$1 and 90 cents.

Pressure—one and one-half inch minimum at the meter of the consumer, with a 100 per cent leeway for a maximum, the maximum to be anything from $1\frac{1}{2}$ inches up.

Candlepower—Eighteen candlepower; present, 23. Penalty for below that, \$150 fine whenever power drops below 18 for 72 consecutive hours; present penalty 4 per cent discount on all bills for each candlepower less than 23, measured on monthly average.

Heating Unit—B. T. U. 600, or 35 less than demanded by W. D. Marks, city's special expert. Penalty, rebate of bills figured when the heating efficiency falls below 600.

Extensions—At least four miles of mains per year in graded streets, providing one consumer to each 100 feet of main is assured. Company to take orders from city and repair streets under City Engineer's instructions.

Moline Improves Illumination

Moline, Ill.—The city will place flaming arc lamps at the intersections of downtown streets. In addition to these merchants will provide two lamps for the middle of each block. The two city lamps will burn all night and the merchants' lamps will burn from dark until 10 o'clock. The old strings of incandescent lights, which were inadequate to start with, were burned until 10 o'clock only on Wednesday and Saturday nights.

Pasadena Has a 5-Cent Electric Current

Pasadena, Cal.—Following the passage of an ordinance requiring the installation of meters and the charging of electric lighting service by meter measurement only, the Southern California Edison Company, which has 3500 flat-rate consumers in the city has issued a notice regarding a new scale of rates. In order to allow their consumers to continue the liberal use of electricity the low maximum rate of 5 cents per kilowatt for 100 kilowatts per month and 4 cents for 2000 kilowatts per month are quoted.

FIRE AND POLICE

Burglary in Police Department Building

Amsterdam, N. Y.—The offices of City Treasurer and District-Attorney of this city were entered by burglars at noon, December 1, and \$800 was stolen. The Treasurer occupied rooms in the same building occupied by the Police Department.

Auto Engine Sets Pace

Birmingham, Ala.—A practical demonstration of the working efficiency of the auto fire engine was given at 11:25 on a recent morning when Demonstrator George Fowler, with the assistance of one fireman, ran the auto 21 blocks to a small fire on Thirteenth avenue, south, laid a line of hose and had a stream playing on the fire before Company No. 5 could run their horse-drawn apparatus five blocks to the fire. Fowler was on the scene long before Chief A. N. Bennett arrived, and the Chief said that the speed of the auto had doubtless saved a nearby barn from burning. The machine has been going through some severe and remarkable tests and in every case has come off with new laurels to its credit. When speed is the consideration the new machine is in its element. It is claimed that 90 per cent of the country's large fires have gotten beyond control in the first three minutes after the alarm was turned in.

Plan Reinstatement of Mounted Police

Dayton, O.—The organization of a mounted police force, abandoned for eight years, is proposed. The special need for the mounted men at this time rises from the fact that considerable suburban territory has recently been annexed.

Police Force of 14 Formally Inspected

East Providence, R. I.—The first formal inspection of the police force of fourteen officers and men was recently held in the Council Chamber at the beginning of the town year. The men had their revolvers and equipment inspected. Chairman Phillips of the Police Committee made a brief address, saying that the growth of the town would soon necessitate an increase in the force and that the most efficient men would be promoted. He said that there was no illegal business in the town that was being protected.

Elmira Chief Invents New Appliances

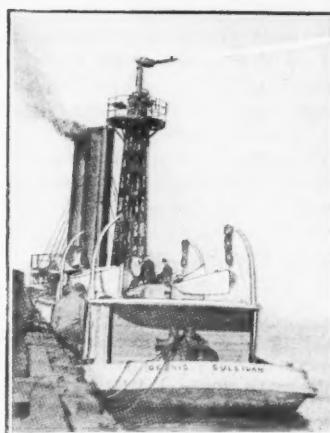
Elmira, N. Y.—Chief John Espy of the Elmira Fire Department has invented a ladder pipe and a chemical hose nozzle, which have just been put in use and are proving very successful. The ladder pipe has been sent to Schenectady, where it is to be tested. The ladder pipe is so constructed that a line of hose may be taken to the top of a ladder and fastened quickly. A rope attached to a nozzle makes it possible to fight a fire from the ground when the flames are too hot to stand on a ladder and face them. At a fire on Railroad avenue, it was necessary to send to Fire Headquarters for a second engine, but it could not be used because it was not "steamed up." Up to that time but one engine could be connected with steam, at the same time on account of the breaking off of the steam connection, when the engine was pulled out of the engine-house, but under the present system two engines are connected. Chief Espy set to work and devised a set of intricate pipes situated under the floor connected with two engines, which face each other. When an alarm is sounded one of the engines is broken free from the connection, automatically, and when it becomes necessary to call the second engine, it is pulled out of a rear door. A weight attached to the shut-off valve breaks off when the first engine goes out.

New York Police Have New Headquarters

New York, N. Y.—Police Commissioner William F. Baker, surrounded by his four deputies, officially opened the new Police Headquarters Building, November 27, at midnight, by sending out over his own signature a general message to all precincts telling the members of the force that hereafter Police Headquarters would be in the building that occupies the irregular square formerly known as Centre Market, which is bounded by Centre, Grand and Broome streets and Centre Market Place. The new headquarters cost the city \$750,000. The old headquarters at 300 Mulberry street were entirely inadequate in size and were even in an unsanitary condition.

San Francisco Fireboat in Commission

San Francisco, Cal.—The city fireboat "Dennis T. Sullivan" has been tested and is in commission. It is said to be superior to those used in New York Harbor. It is furnished with water tower, three fixed monitors and two portable monitors. Double-screw propellers facilitate turning. There are connections for 29 streams. A novel feature is a system of water curtain pipes, which protect the boat and firemen and permit close approach to a fire. The boat is one of two ordered and cost \$350,000. It will carry a crew of ten men exclusive of firemen.



Courtesy San Francisco Chronicle.

New York Won't Burn Up

New York, N. Y.—The Fire Department does not agree with R. E. Humphrey, an expert in building material of Philadelphia, Pa., who said in London, that New York was doomed to a great conflagration like those of San Francisco and Baltimore unless the building laws are revised. Fire Chief Edward F. Croker, commenting on the statement, said that New York was not going to burn up right away. He had great respect for Mr. Humphrey as an expert of high standing and a Government Engineer, but he could not agree with him as to the particular danger threatening New York. "New York will never have a conflagration," said he. "To be sure we could have a fire in one block which might do as much money damage as the Baltimore fire, but as for a fire sweeping over any such territory it could not happen here. Look at the statistics prepared for all the places in the country, which show that in this city 99 per cent of all the fires in a year were confined to the building of their origin."

Chief Given Charge of Demoralized Volunteer Company

Harrisburg, Pa.—Fire Chief C. A. Garverich, in a communication to Council, during the investigation of conditions prevailing in the Fire Department, stated that the Citizens' Fire Company would not obey his orders and that he was without power to enforce discipline. City property to the value of \$9,000 is in the possession of the company. A resolution was passed unanimously by both branches of Council turning over the Citizens' building and apparatus to the Chief's control until the company is reorganized.

Forming Permanent Department

New Bedford, Mass.—Chief Edward F. Dahill outlined to the Board of Fire Engineers his plan for placing the Fire Department on a permanent basis. The present force consists of 56 permanent and 192 call men. The Board passed a resolution asking for ten more permanent men for the coming year at a cost of \$10,500. Later on the Chief will ask to have a drill school established.

Firemen's Salaries in Some Western Cities

Topeka, Kan.—In connection with a discussion of the revision of the wage scale for firemen the following figures have been gathered from Western cities:

	Pueblo	Ogden	Wichita	Little Rock	Topeka
30,000 pop.	30,000 pop.	50,000 pop.	33,000 pop.	52,000 pop.	
Firemen	\$80	\$80-70	\$80-65	\$85	\$70-55
Engineers	100	.....	.....	.....	.....
Captains	85	95	85	95	80
Asst. Chief	100	100	110	110	90
Chief	150	150	150	150	150

Gets Fire Protection Free

Wilson, N. Y.—Citizens of the village of Wilson are congratulating themselves on having secured a system of fire protection free of cost. This resulted from negotiations with the Fredonia Preserving Company which has been emptying its waste into a creek running through the village. The company has constructed a sewer out into Lake Ontario and laid a pipe line for water from the lake. A pumping station has been built on the shore and hydrants installed along the line to give the desired fire protection.

GOVERNMENT AND FINANCE

City Claim Agent to be Appointed

Fort Worth, Tex.—Owing to the large number of personal injury cases that are brought to the attention of the city authorities, it has been suggested as an expedient that the city select a claim agent to look after matters of this kind. Corporation Council Slay is very enthusiastic concerning the matter, and it is not at all improbable that the office will be created. Members of the city detective force will be employed to investigate alleged injury and damage and report back to the claim officials.

Variable Interest Rate for Pittsburg Bonds

Pittsburg, Pa.—A new plan regarding the issue of \$6,775,000 bonds authorized at the November election has been agreed on by Mayor William A. Magee, City Controller E. S. Morrow and Frederick W. Longfellow of the law firm of Hawkins, Delafield and Longfellow, who passed on the validity of the bonds. Eight separate ordinances authorizing the issue of bonds at a rate of interest not exceeding 4½ per cent will be passed. Only such amounts of the bonds will be issued as are necessary from time to time. At one time the bonds may bear 4½ per cent, at another 4. Sometimes they may be issued free of state tax, another time the buyer may be required to pay the state tax. It is possible that bidders may be required to state the rate of interest at which they will take the bonds.

Proceedings for Destroying Unsold Bond Issue

San Francisco, Cal.—The City Treasurer has been authorized to cancel an unsold issue of over \$9,000,000 of bonds which were to have borne 3½ per cent interest, but could not be sold on that basis. The procedure is to be as follows:

That said cancellation shall be made by the Treasurer by perforating said bonds and coupons thereto attached through the face thereof with the words "Cancelled pursuant to Ordinance No. (the number of this ordinance)." That upon said cancellation having been made, said Treasurer shall file in the office of the Clerk of the Board of Supervisors the affidavits of two persons to the effect that such persons and each of them have inspected each bond and coupons thereto attached required to be canceled by this ordinance, and that the same have been canceled as required by this ordinance. The Treasurer is hereby authorized to purchase all necessary appliances for making such cancellation.

Municipal Reform in Spain

Madrid, Spain.—Premier Moret has published in the Official Gazette the text of a sweeping bill for the reform of municipal administration in Spain. The bill aims at the decentralization of power heretofore concentrated at Madrid. The bill proposes to restore the principle of municipal autonomy, destroyed in recent years by special decree of the central government, and confer upon municipalities full power to make laws and regulations covering public works, the opening and paving of streets, lighting, water supply, control over markets, sanitary service, educational and police institutions.

Wants New System of City Taxation

Tacoma, Wash.—The present system of taxing real property in Tacoma will be readjusted before the next levy is made if the Chamber of Commerce can devise a better method. At its regular meeting the Trustees created a special committee on assessment and taxation and directed Secretary Alfred L. Sommers to investigate assessment methods in other Pacific Coast cities with a view to evolving an improved scheme for Tacoma. The Trustees believe the present levy of 31 mills on a 60 per cent valuation brings the expense of owning property to a point where manufacturers considering Tacoma as a possible location find profit to themselves in seeking less expensive sites elsewhere. The Trustees want to have the levy adjusted to a larger assessed valuation and thereby, they say, lower taxes on individual parcels of real property.

Assessments in Installments

Washington, D. C.—William P. Richards, Assessor of Taxes, has recommended to the Commissioners an amendment to the present law regarding tax sales, which will make it possible for the District to collect assessments which will be levied for alley or highway purposes in five annual installments. Eight per cent interest is mentioned as a penalty for lax payment. Provision is made for sale of property at the end of five years, if assessment and accrued interest are not forthcoming.

COMMISSION GOVERNMENT FOR CITIES

Gloucester's First Year Under Commission—Two Cities Urge Change—Spokane Recommendations

Gloucester, Mass.—Mayor Henry H. Parsons and the City Commissioners have issued a statement to the voters briefly reviewing their year's work. The Municipal Council held 133 meetings besides 267 committee meetings, and the records of the Council covered 522 pages as compared with 286 pages of the records of the old City Council. The reduction in the city debt has been \$18,000 with all bills paid. The roads were never in better condition, though the expense was \$6,000 less than formerly. A system of bookkeeping which was approved by the State authorities was put into effect. Public buildings have been better cared for at less expense.

Iola Wants Commission

Iola, Kan.—At a recent mass meeting the first steps were taken at securing city government by a commission, and committees were appointed to correspond with officials in cities where the proposition has been tested. The information thus obtained is to be presented at another mass meeting which will be held this month. An effort will also be made to get speakers who have given this question special study to address the meeting. The commission form of government has been suggested here for several years, but only recently have the citizens become generally interested. A straw vote taken resulted almost unanimously in favor of a commission.

Rochester, Minn., Wants Commission Form

Rochester, Minn.—Rochester may adopt the commission plan of government. For some weeks past there has been agitation in this direction, not because of the inefficiency of any of the city officials, but because it is believed by a number of prominent citizens that better results and a more businesslike administration can be obtained from the commission plan than under the present system. To arrive at a satisfactory understanding of the matter the Commercial Club of the city has arranged for a public meeting to be held in the near future, and at that time the commission plan will be discussed.

Commission Plan in Spokane

Spokane, Wash.—Six thousand dollars a year until the population of the city shall have reached 150,000, after which each of the five commissioners is to receive \$7,500 yearly, is the salary recommendation of the special committee named by Mayor Nelson S. Pratt, as stated in our issue of November 10, in reporting upon a new charter for Spokane. The Commissioners are to be elected at large for these departments: Public Safety, Public Works, Public Affairs, Public Utilities and Finance. It is also recommended that the Park Commission be continued, also that a Civil Service Commission be created. One member shall be designated as Mayor and act as Chairman of the Board, another as Vice-Chairman, but every resolution or ordinance must be signed by the Mayor, acting Mayor or two members of the Board. All ordinance legislation shall be by ordinance, effective ten days after adoption, unless otherwise specified, but franchises cannot become operative until thirty days after their passage. After the Commission is created, and beginning in 1912, two members shall be elected at the general election and three alternately at biennial elections.

Town is Satisfied With its Council

Granger, Wash.—Granger has established a record in town government. The date of its first annual election being near, books were opened for registration of voters, but registration time has since passed and not a citizen has registered, all declaring themselves satisfied with the Council and willing that it should hold office without an election.

Town Without Mayor

Welch, W. Va.—Kimball is at present without a Mayor. E. D. Lewis, Mayor of the town two months ago, moved into Virginia, but still retained his office at Kimball. Some of the citizens objected, and the case was thrashed out in Judge Herdon's court, who ruled that, being a resident of another State, Lewis could not hold the office. Lewis and the members of his party will appeal the case to the higher courts.

STREET CLEANING AND REFUSE DISPOSAL

Reduction Plant Continues to Offend

Harrisburg, Pa.—An ordinance abrogating the contract between the city and the Pennsylvania Reduction Company may be introduced in Councils by Common Councilman Augustus Wildman, of the Tenth Ward, unless something is done soon by the city or Reduction Company authorities to free the city from the offensive odors arising from the plant.

Asks Mayor to Have Dirty StreetsFlushed

Lowell, Mass.—The Board of Health has sent a communication to Mayor George H. Brown calling his attention to the dirty condition of certain streets in the center of the city, and expressing the view that the dust arising from them is a menace to health. The request is made that the streets be thoroughly washed not less than once a week. The Board is of the opinion that there are few weeks during the winter when a day warm enough for this work cannot be found.

Change in Character of Street Cleaning

New Orleans, La.—Commissioner George W. Smith of the Department of Public Works, speaking after the semi-annual inspection of the street cleaning force, said that the rapid increase in the area of paved streets was bringing about a change in street cleaning methods. As a result, increased appropriations are needed for the purchase of the latest implements and machines for the cleaning of streets, gutters and sidewalks.

Will Keep Streets Clear of Trash

New York, N. Y.—Street Cleaning Commissioner William H. Edwards is planning a crusade against the indiscriminate throwing of waste on the streets. In addition to establishing thousands of additional receptacles in every borough he will cause notices to be sent to each householder and placards to be posted requesting active co-operation by men, women and children to keep the streets free of litter. The Commissioner will also give lectures, illustrated by stereopticon views taken by Engineer Stearns of his department. "My idea," said the Commissioner, "is to show the people how to have clean streets and save money. If the streets are not littered so much the extensive cleaning done now will not be necessary. That means a saving of money to the taxpayers. We shall try peaceable methods, but shall urge and demand an enforcement of the city ordinances against littering the streets. I am going to show the people what I am trying to do."

RAPID TRANSIT

Break-Down in Power House Stops All Trolleys

Wilmington, Del.—For two hours during the rush of Saturday shopping the entire system of the Wilmington City Railway Company was out of commission and not a car moved over any of the lines. This was due to an accident at the company's power plant in Brandywine. A commutator of the largest generator burned out. Then two smaller generators were placed in commission, but these had not been operating long when an eccentric slipped on the shaft of one of them. The third machine was too small to generate power for the entire system of the city, so all the cars were at a standstill until the damage to the two larger machines could be repaired. Suburbanites who had come to the city to shop were obliged to walk to their homes or wait until a late hour.

Educating Passengers to Keep Front Platform Clear

Philadelphia, Pa.—A question has arisen as to the advisability of opening the front gates of the old type of cars to allow ingress and egress. The railway company would like to keep them open, but it is found in practice that people insist on riding on the front platform, interfering with the work of the motorman. A statement has been issued by officials of the Rapid Transit Company that the gates will be opened if the right to stand on the front platform is not insisted on. If passengers will use the platforms and gates properly they will be opened.

Near Stop Plan Liked

Rochester, N. Y.—The "near stop plan," put into effect by the Rochester Street Railway, is a complete success. The new plan was well tested in the early morning rush, but its complete success was not demonstrated until the thousands of toilers, who use the cars through the heart of the city in the rush hour every night, had been carried to their homes with less interruptions than they ever have experienced in their nightly trip homeward. The following facts have been gathered since the new rule went into effect:

1. An improvement of 48 per cent in the running time of the cars through congested streets.
2. Loading and unloading of passengers at near stop accomplished more promptly than ever before.
3. Public pleased.
4. Traffic officers pleased.
5. Railway Company pleased.
6. Company's official checkers find new plan a distinct improvement in time schedules of cars.

The ease with which the new system has been accepted by the general mass of the public is due, in a sense, to the trouble to which the railway company went in order to acquaint passengers with the new stopping places. More than \$1,000 has been spent by the railway company in advertising, putting up signs and issuing other printed matter in regard to the adoption of the near stop plan.

Change in Transfer System

Rochester, N. Y.—The Rochester Railway Company has put into effect a new transfer system designed to prevent the congestion of traffic and also the abuse of transfer privileges. Hereafter transfers from one line to another will have to be made at certain designated transfer points, and the passenger will be required to change at the first one of them available. The transfers will be distinguished by four colors, each representing one of the quarters of any hour.

San Francisco Requires Use of Fenders

San Francisco, Cal.—The fender ordinance, over which there has been much controversy with the officials of the United Railroads, has been passed by the Board of Supervisors. An exception to the use of the fender is made on grades of 10 per cent. A description of the fender to be used is given in the ordinance and it is practically the same as that now used on the San Mateo cars. The description reads:

Said fender shall be placed upon and attached to the front end of each such car and not attached to the frame of the wheels or truck thereof; and shall be so placed and maintained that the space between the bottom of the front part of the fender and the roadbed or rails shall not exceed three inches. Each such fender shall extend across the front end of such car and shall be of a width of not less than sixty-eight inches. The front edge of the fender shall extend ahead of and beyond the front of the car and the farthest projection thereof. Such fender shall be of such height that it shall extend upward from the rails or roadbed to at least the floor level of the car. Such fender shall form a scoop not less than three feet from front to back, which, upon striking a person, will tilt back and thereby form a cradle or receptacle capable of receiving and securely retaining such person; and its upper portion shall form a shield extending across the entire front of the car to protect persons falling into or upon it from injuries from contact with the rigid projecting portions of the car, such as the bumpers, bumper-beams or drawbars, and such fender shall be constructed of material that will afford ample strength for the purpose for which it is intended, and of a yielding or a resilient character so as to cushion or break the impact of a person falling into or struck by it.

Car Fenders and Wheel Guards Dangerous?

Washington, D. C.—Representatives of street railway companies, in a hearing before Thomas W. Smith of the District Electric Railway Commission, contended that compliance with rule numbered one of the rules and regulations promulgated by the Interstate Commerce Commission, which requires every railway car operated in the District to be equipped with front automatic or platform operated projecting pick-up fenders and with automatic wheel guards, the former not to have an elevation of more than six and the latter of four inches above the rail when in normal position, would be dangerous and likely to throw the cars off the track.

MISCELLANEOUS

Chicago Amends Dog Ordinance

Chicago, Ill.—An ordinance amending the Municipal Code regarding the impounding and disposition of fierce dogs has been recommended for passage. The ordinance contains the following clauses:

At the same time and place set for trial in any branch of the Municipal Court of the City of Chicago, for any cause referred to in this ordinance, if it shall appear that any dog has in any manner disturbed the quiet of any person or persons, or caused an abrasion of the skin, or attempted to bite or snap at any person or persons within the city, the owner or keeper shall be fined not less than five dollars nor more than \$200.

If said cause is tried before a jury and the jury assesses the damages of the City of Chicago, the court may stay execution or issuance of a writ upon motion of the City Prosecutor, and continue the cause for a further day and order the defendant to have the dog shot by a police officer of the City of Chicago, within the time for which the case is continued.

If said cause is tried by the Court, defendant waiving a jury trial, the same course will prevail as though tried before a jury.

Upon a satisfactory showing to the court that said dog has been shot, the court may in its discretion cause a non-suit to be entered in said cause.

Will Have Municipal Visiting Nurse

Racine, Wis.—A municipal visiting nurse, working under the direction of the Board of Health for four months every year, will be engaged by the city, according to a resolution adopted at the meeting of the Board of Health, her work to begin on December 1 and end on April 1, during which time it is estimated the most sickness prevails.

Portland Builds City Hall with Auditorium

Portland, Me.—The foundations for the new City Hall are being constructed on the site of the building destroyed by fire about a year ago. The building, designed by Carrere



NEW CITY HALL OF PORTLAND, ME.

& Hastings, of New York City, will be built of Maine granite, and completed will have cost \$900,000. Besides the city offices the structure will contain on the ground floor an auditorium capable of seating 3,000.

City May Build Depot

Cincinnati, O.—A union passenger depot, the property of the city and leased by the city to an operating company, or directly to the various steam and electric interurban railroads, is a possible solution of the depot problem for Cincinnati. Councilman Robert J. O'Brien has a plan which he will submit to the various large business organizations of the city, which he believes, and so do some prominent citizens to whom he has outlined it, would give this city a railway terminal property relatively as valuable as the Cincinnati Southern Railroad, which is owned by the city.

Wants Parks Free from Smoke

Cleveland, O.—City Forester Boddy has recently received a report from the City Chemist showing the injurious effect of soft coal smoke on the leaves of a sycamore tree in one of the parks. The Forester says he would like to see a State law passed, similar to those in force in some parts of Europe, which would prohibit the establishing of a manufacturing plant within 2,000 feet of a city park.

New Town Hall for Parnassus

Parnassus, Pa.—The new Town Hall has been dedicated and occupied. The structure is of buff brick, two stories, adorned with a tower and clock, which will also be used in a fire alarm system. The first floor is devoted to the office of the Burgess, fire-fighting apparatus and a clubroom for the firemen. The basement constitutes the borough jail, and contains eight cells of up-to-date and sanitary construction. The Council chamber, together with the committee rooms and a large auditorium, is located on the second floor. The auditorium is provided with a suitable stage and has a seating capacity of 300. The new building was erected at a cost of \$25,000. At the ceremonies Attorney John McCartney, of Kensington, acted as master of ceremonies and turned the keys over to Burgess Frank L. Hankey, who responded with a brief speech.

Best Way of Contracting for Coal

Boston, Mass.—Superintendent of Streets Guy C. Emerson has written a letter to Mayor George A. Hibbard commenting on specifications for the purchase of coal. He says:

The contact, in my opinion, should have been drawn in one of two ways: either by requiring the output of a certain mine and holding the contractor strictly to the specifications, or by specifying a certain quality of coal as regards ash, volatile matter, sulphur, heat units, etc., and relying upon such specifications. As a matter of fact, the two schemes were combined, although in the plan adopted (Plan No. 1) the basis of heat units and percentage of ash was the essential part of the contract. Coal of a certain standard was not called for; provisions were simply made for penalizing any coal that fell below a certain fixed standard. So far as I can find the coal furnished was of excellent quality, and except in one instance, was well above the standard set in B. T. U's, the lot which was below the standard being duly penalized as required by the specifications. The engineers using the coal in practical service certified it as being of an excellent quality. In advertising for competitive bids, as is well known, only the minimum requirements of the contract can be enforced, and the fact that a lot of coal was dangerously near the limit is only what should be expected from a competent contractor and a close figure.

Steps Taken Toward Forming Civic Center

Seattle, Wash.—An ordinance is pending in Council providing for the condemnation of a half block of property east of the old City Hall site, with a view to the construction of a new City Hall. Every member of the Board of County Commissioners is in favor of erecting a new county building on the block north of the old City Hall site. Together the buildings would form a nucleus for a civic center.

City to Get Premium on Dog License Tags

Seattle, Wash.—Seattle is to be paid this year for the privilege of furnishing brass dog license tags for next year. Usually these have been furnished by sporting goods houses free of cost, in order that each envelope shall carry the advertisement of the firm. This plan was agreed on this year, but two other concerns decided to have something to say on the subject, and Piper & Taft have offered \$54.50 for the privilege of supplying the tags and the Seattle Sporting Goods Company made an offer of \$75.

Want Public Telephones in the City Hall

Wilkes-Barre, Pa.—The managers of the two telephone companies have been requested by the public property committee of Councils, through City Clerk Fred Gates, to locate public pay stations in the building. The committee decided upon this as a matter of convenience for the public, as often the city employees are forced to refuse the use of the 'phones to people because they desire to call out-of-town people.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Extension of Water Works

People ex rel. Hilliker vs. Pierce et al.—A water works system in a village of the fourth class was extended to supply all the inhabitants except four. Relator was the only one of the four to insist that it be extended to supply him, and he sued for mandamus. The cost of the extension would be less than \$500. Village Law, as amended by Laws 1903, provided that a system of water works established under the article shall be under the control of the Board of Water Commissioners, and that the Board shall keep it in repair, and "may" extend the mains within the village, if the expense in any one year, in a village of the fourth class, shall not exceed \$500, and that a Board "may," in lieu of extending the mains, etc., use the amount specified in improving the existing system. The original cost of the system, which was met by an issue of bonds, relator being taxed for interest thereon, was \$20,000, and there were 150 residencees or places of business. The Board had no money on hand to make the extension. Held, that the word "may," as used in the phrase "may extend" in any one year, etc., though permissive, would be construed "must," especially in view of the permissive character of "may" used in the last sentence of the statute, giving an alternative use of the money.—New York Supreme Court. 119 N. Y. S. 21.

Municipal Indebtedness—Franchises

Levy vs. McClellan et al. Meyer vs. same. Fleischman Realty & Construction Co. vs. same.—"Special franchises," which are privileges of a public nature, the exercise of which is permitted under grants from the state to corporations, partake at common law of the nature of realty, and by General Tax Law, as amended by Laws 1899, are classed as real estate within 1 Revised Statute, and Real Property Law, and they are real estate within Constitution, limiting municipal indebtedness to a specified per cent of the assessed valuation of the real estate of the municipality.—Court of Appeals of New York. 89 N. E. R. 569.

Control of Streets—Transfer to Park Commissioner

City of Chicago vs. Pittsburg, C. C. & St. L. Ry. Co.—Where a city has no authority to repair the walks of a street because such street is under the control of the Board of Park Commissioners, a payment for such repairs is voluntary and cannot be recovered from a railroad company alleged to be liable for such repairs. Where a city, by ordinance, transferred control of a street to a Board of Park Commissioners, who accepted and improved it as a boulevard, the city does not resume control of the street, by the construction of a viaduct by the city and a railroad company jointly, so as to authorize it to repair walks approaching the viaduct.—Supreme Court of Illinois. 89 N. E. R. 648.

Public Streets—Establishment by Prescription

City of Princeton et al. vs. Gustavson.—Where a strip of land was originally set apart by the owner thereof as a private way, the use thereof will be presumed to have been in accordance with the original intent, and when a way is opened as a private way it cannot be converted into a public street by the mere use thereof, where such use is entirely consistent with the view that its use was merely permissive.—Supreme Court of Illinois, 89 N. E. R. 653.

Building in Park—Authority

Ward vs. Field Museum of Natural History et al. South Park Com'rs vs. Ward et al.—Where the only right which Park Commissioners of a city had to authorize the erection of a building in a city park was derived from the city and from legislative acts, judgments in former suits by plaintiff against the State and the city denying their right to authorize the erection of a building in the park was conclusive upon the State and all of its subordinate agencies, including the city and its citizens, as well as a Park Commission under whose control the park was subsequently placed, in a subsequent action by plaintiff against the Park Commission to enjoin the erection of buildings in the park.—Supreme Court of Illinois. 89 N. E. R. 731.

Railroads—Franchise—Forfeiture

City of New York vs. Bryan et al.—A franchise to construct and operate a railroad is a grant from the State, although the consent of local authorities must be obtained. It may be granted to individuals, and when granted, becomes property, and cannot be arbitrarily recalled, unless power to do so is reserved in the grant, but it is subject to forfeiture by failure to exercise it within a reasonable time if no time is specified, or by abandonment after it has been exercised. A railroad company, incorporated under Railroad Law 1850, as amended by Laws 1867, providing that on failure of the company to finish its road within ten years from the time of filing its articles of incorporation, its corporate existence and powers shall cease, forfeits its franchises on forfeiting its corporate existence. While the title to the streets in the Borough of Manhattan is in the city, its title is not that of a private owner, but in trust for public purposes. On the question of forfeiture, the status of a franchise of a railroad company which has ceased to have a corporate existence because of failure to complete its road in ten years, and the rights of the directors of the corporation who have become trustees for its creditors, stockholders, and members, can be determined only in litigation between the people of the State and the directors, and not in an action by a city which has consented to the granting of the franchise in its streets against the directors.—Court of Appeals of New York, 89 N. E. R., 467.

Telephone Franchise—Free Service—Discrimination

City of Superior vs. Douglas County Telephone Co. et al.—The right of a telephone company operating in a city to give its general customers facilities for communication by telephone with the public offices of the city renders the service it offers to its general customers more valuable, and the granting by the city of the right to maintain telephones in its public offices operates to expedite public business, so that such a right is a legitimate basis for a contract between the company and the city, and the grant of such a right may be so valuable to the company as to be a fair equivalent for the service to the city offices without any direct pecuniary compensation therefor. The duration of a contract may be made dependent on the expiration of a period of time or on the completion of a given undertaking or the happening of some event, all of which in turn may be certain or uncertain as to the date when the undertaking may be completed or the event may happen, and this uncertainty does not render the contract terminable at will. A contract binding a telephone company operating in a city to maintain, without charge, telephones in the public offices of the city so long as it maintains and operates a telephone exchange in the city, fixes a time for its termination, and the contract is binding according to its terms.—Supreme Court of Wisconsin. 122 N. W. R. 1023.

Public Debt—Annexed Territory

Fisher et ux. vs. City of Seattle et al.—The use of its general fund by the city of Seattle to accomplish its obligation to pay warrants issued by the city of Ballard before its annexation under Laws 1903, providing that no property of either corporation shall be taxed to pay the debts of the other, did not extinguish the indebtedness, but it still existed as a charge against the territory annexed so as to authorize issue of funding bonds to be paid by such territory; the ordinance directing such use of the city's funds showing that the object was to take up the warrants and refund them by a bond issue.—Supreme Court of Washington. 104 P. R. 655.

Defective Streets—Subsequent Repairs

Tise vs. Town of Thomasville.—In an action for injuries from a defect in a street, subsequent repairs are not an admission of previous culpable negligence, and evidence of such repairs is inadmissible.—Supreme Court of North Carolina. 65 S. E. R. 1007.

Defective Street—Liability

Berry vs. City of Greenville et al.—The "neglect" mentioned in the statute defining the liability of a city for injuries to pedestrians on defective sidewalks means the want of ordinary care, and the city must, to escape liability, use ordinary care to keep defects out of its streets.—Supreme Court of South Carolina. 65 S. E. R. 1030.

NEWS OF THE SOCIETIES

Indiana Public Improvements Association.—The association was organized at a meeting of a number of road contractors at the Denison Hotel, Indianapolis, November 28, with a paid membership of about seventy-five. The meeting was called by R. C. Hillis and A. H. Barnes, of Logansport, in accordance with action taken recently by road contractors of Cass County, to take action looking to a modification of the recent decision of the Supreme Court of the State, declaring unconstitutional the three-mile gravel road law, and to obtain a definite understanding as to the rights of the bondholders and contractors under the recent decision. A constitution and by-laws were adopted and the following officers were elected: President, R. C. Hillis, Logansport; vice-president, W. C. Dorsey, Terre Haute; secretary, A. H. Barnes, Logansport; treasurer, H. S. Davidson, Whiting. The following committees were announced: Finance—T. E. Knotts, Gary; H. C. Stillwell, Anderson; Charles Murphy, Brookston; A. H. Barnes, Logansport, and John Holloran, Indianapolis. On construction of law, Charles Murphy, Brookston; Joseph Hall, Logansport; Fred Cunningham, Linton; W. F. Smith, Rensselaer, and H. C. Stillwell, Anderson. Press—H. C. Stillwell, Anderson; H. D. Davidson, Whiting; John Levandowski, Lafayette, and J. B. Little, Indianapolis. Daniel Fatout, Indianapolis, was appointed chairman of the membership committee, and H. C. Stillwell was appointed chairman of the committee on legislation.

American Society of Civil Engineers.—The fifty-seventh annual meeting will be held at the house of the society, 220 West Fifty-seventh street, New York, on Wednesday and Thursday, January 19 and 20, 1910. The business meeting will be called to order at 10 o'clock on Wednesday morning, when the annual reports will be read, officers for the ensuing year elected, members of the nominating committee appointed, reports of special committees presented for action and other business transacted. The arrangements for excursions and entertainments will be announced in a circular to be issued about December 15, 1909. Charles Warren Hunt is secretary of the society.

Montclair, N. J., Civic Association.—The charter revision committee appointed a year ago, composed of John B. Wight, Starr J. Murphy, Otto C. Wierum, Herbert M. Lloyd and Charles H. Hartshorn, has outlined the following changes:

First—The number of local offices to be filled by election should be reduced, and to this end, only the Mayor and Council should be elected. All other administrative officers should be appointed.

Second—All members of the Town Council, as well as the Mayor, should be elected at large and not by wards.

Third—Election for local officers should be held at different times from other elections.

Fourth—The use of party names or emblems in election for local officers should be prohibited and the ballot should be so arranged that the voter must indicate an individual choice of the candidate for each office for whom he intends to vote.

Fifth—All public officers and employees, other than elected officers and laborers, should be selected according to merit and fitness.

Sixth—Appointment to office need not be confined to residents of the town or State.

Seventh—Tenure of office, except in elective offices, should be, practically, during good behavior.

Eighth—The charter should provide either directly, or through a grant of power to the Council, for a redistricting of the duties of the various administrative offices.

Ninth—The charter should contain adequate provisions for a uniform and scientific system of public accounting, for the publication, at frequent intervals, of the acts of the Council and the receipts and expenditures of public moneys, also of the items of proposed budgets, with opportunity for public hearing on the latter.

The committee has recommended that the Civic Association appoint another committee to draft a charter along the lines indicated in the nine propositions and have it ready before January 1, 1910.

Civic Improvement League of Alexandria, Va.—The Civic Improvement League, at its annual meeting at the rooms of the Chamber of Commerce November 27, elected the following officers to serve for the ensuing year: E. S. Leadbeater, president; E. J. Paff, Robert S. Barrett, A. D. Brockett, Henry K. Field, Mrs. E. S. W. Howard, Miss Helen N. Cummings, Miss Fanny Herbert, vice-presidents; Mrs. John M. Johnson, corresponding secretary; J. Y. Williams, recording secretary; C. S. Taylor Burke, treasurer; R. S. Jones, auditor.

Municipal Art Society of New York.—At a meeting of the directors at the National Arts Club, in Gramercy Park, New York City, the following officers were elected: John G. Agar, president; William T. Evans, vice-president; John J. Boyle, second vice-president; Charles H. Israels, secretary; Stephen Farrelly, treasurer, and Nelson S. Spencer, counsel. The board of directors elected comprises, among other members, the Mayor, Charles R. Lamb, John De Witt Warner, Albert E. Davis, George T. Brewster, H. Van Buren Magonigle, Frederick S. Lamb, William C. Muschenheim, Bert Hanson and Richard W. G. Welling.

Municipal League of Harrisburg, Pa.—At the annual meeting November 30 the following officers were elected: President, Vance C. McCormick; vice-presidents, John A. Affleck and George W. Reily; secretary, J. Horace McFarland; treasurer, Horace A. Witman. Secretary McFarland, in a review of the work of the year, pointed out that the great strides forward which Harrisburg has made in the past seven years have placed it for purposes of comparison with cities of a half a million population and congratulates the city in that the public improvements have been accomplished without a breath of scandal following the expenditure of many thousands of dollars. These things have advertised the city favorably, but a failure to maintain the pace would result in similar unfavorable advertising.

City Improvement Association of Scranton, Pa.—At a meeting of the association at the residence of former Mayor J. Benjamin Dimmick a campaign for the systematic improvement of the physical features of the city, based upon a permanent plan formulated by experts, was inaugurated. A fund of \$1,150 was collected to begin the work.

Conservative Club of Providence, R. I.—At a meeting November 30 Mayor Henry Fletcher spoke of the electric lighting franchise which will expire in two years and of electric lighting conditions in Providence. The Mayor expressed the opinion that Providence was well supplied with lights, especially arc lights, and that improvements in the future would be in the line of increasing incandescent lights, even to the extent of substituting them for arcs.

Second Ward Improvement Association of Nutley, N. J.—At a meeting at the home of M. E. Fuller the subject of highways and parks was discussed.

The Park Committee was directed to communicate with the local Park Commission and also those of Belleville and Essex County relative to the acquisition of land between the River road and the Passaic River with a view to developing it into a park boulevard.

Washington Association for the Prevention of Tuberculosis.—The association has started its Fall campaign in the schools. Miss Grace L. Anderson, lecturer, will spend eight months visiting the schools to talk to the children from the fifth to the eighth grade on preventive measures against tuberculosis. This work was carried on as an experiment last May and June, with enough success to make possible its continuation this Fall. In the last two weeks Miss Anderson has met sixty-two classes in the tenth and eleventh divisions, with a total enrollment of 2,110 children. In speaking to the children a few simple facts on the value of cleanliness, fresh air and proper food are impressed on their minds. She aims to teach the children how to keep themselves free from the tuberculosis germ, for it is well known that, although comparatively few children are actively tuberculous, many are predisposed to the disease and will provide a fertile field on reaching maturity for the active form, unless preventive measures have been taken in earlier years. The children will be asked to write essays on what they have learned in the school talks. This is only one phase of the work of the association.

Calendar of Meetings

Dec. 7-10. **American Society of Mechanical Engineers.**—Annual meeting, New York, N. Y.—C. M. Rice, Secretary, 29 W. 39th st., New York, N. Y.

Dec. 14-15. **Association of American Portland Cement Manufacturers.**—Annual meeting, New York, N. Y.—Percy H. Wilson, Secretary, Land Title Building, Philadelphia, Pa.

Dec. 6. **American Society of Refrigerating Engineers.**—Annual meeting, New York, N. Y.—Wm. H. Ross, Secretary, 154 Nassau st., New York, N. Y.

Dec. 8-10. **American Institute of Chemical Engineers.**—Annual meeting, Philadelphia, Pa.—J. C. Olsen, Secretary, Polytechnic Institute, Brooklyn, N. Y.

Dec. 14-16. **American Institute of Architects.**—Annual convention, Washington, D. C.—Glenn Brown, Secretary, The Octagon, Washington, D. C.

Dec. 27. **American Association for the Advancement of Science.**—Annual meeting, Boston, Mass.—L. O. Howard, Secretary, Smithsonian Institute, Washington, D. C.

Jan. 6-8. **Montana Society of Engineers.**—Annual meeting, Butte, Mont.—Clinton H. Moore, Secretary, Butte, Mont.

Jan. 14-16. **Michigan Engineering Society.**—Annual meeting, Lansing, Mich.—Alba L. Holmes, Secretary, 574 Wealthy ave., Grand Rapids, Mich.

Jan. 14-16. **Indiana Engineering Society.**—Annual convention, Indianapolis, Ind.—Chas. Grossman, Secretary, Union Trust Bldg., Indianapolis, Ind.

Feb. 24-25. **National Association of Cement Users.**—Annual meeting, Chicago, Ill.—Geo. C. Wright, Secretary. Address all communications to Edw. E. Krause, Asst. to the President, Harrison Bldg., Philadelphia, Pa.

Jan. 26-27. **American Society of Engineering Contractors.**—Annual convention, Chicago, Ill.—Daniel J. Hauer, Secretary, Park Row Building, New York, N. Y.

Jan. 26-27. **Canadian Society of Engineers.**—Annual meeting, Ottawa, Ont.—C. H. McLeod, Secretary, 413 Dorchester st., West, Montreal, Quebec.

Illinois Society of Engineers and Surveyors.—Annual meeting, Cairo, Ill.—E. R. Tratman, Secretary, 1636 Monadnock Block, Chicago, Ill.

PERSONALS

AIKEN, H. M., Knoxville, Tenn., has resigned as manager of the water works. J. E. Lavin, cashier, has been elected treasurer.

BALL, R. W., Henderson, Ky., has been appointed City Engineer. Other appointments are: Council Advisor, N. Powell Taylor; City Clerk, Joe G. Adams; Hospital Superintendent, Mrs. N. E. Barnett; City Physician, Dr. W. S. Borwood; Assessor, J. H. Stewart; Mayor pro tem, W. H. Mayor; Chief of Fire Department, D. S. Eblen.

BLEASE, COLE L., Newberry, S. C., has been elected Mayor, defeating the present incumbent, J. J. Langford.

BRANDON, EMMANUEL, Newton, L. I., N. Y., has been appointed by Borough President Gresser as Superintendent of Buildings, succeeding the late Edward F. Kelly.

BRIDGES, A. N., East Grand Forks, Minn., J. F. Craig and J. R. Johnson have been appointed members of a new special commission to have charge of the municipal water, power and light plants.

BROWNE, RHODES, Columbus, Ga., has been re-elected Mayor by unanimous vote.

CHAMBERS, DR. W. H., McKeesport, Pa., has been appointed member of the Board of Health to succeed Dr. W. M. Downey, resigned.

CORNWELL, R. L., Dallas, Tex., Chief of Police, has resigned.

COLTA, JACINTO, New York, N. Y., Assistant Corporation Counsel in the Bureau of Street Openings, has requested the Comptroller to reduce his salary 10 or 15 per cent. He suggests that a wholesale reduction of salaries ranging from \$3,000 to \$6,000 in various departments would be equitable.

COSGROVE, CHARLES H., Boston, Mass., has been appointed secretary to Fire Chief John A. Mullen, succeeding Lieutenant Joseph Webster, resigned.

DURYEE, DR. CHARLES C., Schenectady, N. Y., Mayor-elect, has announced the following appointments:

Commissioner of Public Works, Alvin J. Quackenbush.
Commissioner of Public Safety, James C. McDonald.
Corporation Counsel, Daniel Naylor, Jr.
Assistant Corporation Counsel, Frank Cooper.
City Engineer, John Leland Fitzgerald.
Commissioner of Charities, George E. Duryee.

Health Officer, Dr. Charles F. Clowe.

EDMONDS, O. W., Mayor-elect of Frankfort, Ind., has announced the following appointments:

Chief of Police, Linneas S. Baker.
Street Commissioner, Henry Wolf.
City Civil Engineer, Felix Cobler.
Chief of Fire Department, Link Rebstock.

Members of Board of Health, Dr. Benson Ruddell, Horace Miner and E. W. Wells.

GOETZ, CHARLES L., Mayor-elect of South Bend, Ind., has announced the following appointments:

Board of Public Works, Otto C. Bastian, President; Charles F. Niedbalski, Francis E. Lambert.

Board of Public Safety, Joseph E. Williams, President; Louis Nickel, Jr., John Mountain.

Park Commissioners—F. C. Winkler, four years; Richard Elbel, three years; Simon Greenbaum, two years; George M. Studebaker, one year.

Board of Health, Dr. J. B. Berteling, Secretary; Dr. H. C. Vitou, Dr. Walter A. A. Hager, Dr. J. W. Hill.

City Controller, Patrick R. Joyce.

City Attorney, Iden S. Romig.

City Engineer, William S. Moore.

GOWING, EARLE HARLEY, Reading, Mass., was killed in an accident at Millinocket, Me., recently. He was widely known in New England as a specialist in water works affairs and was also connected with banking interests.

GRICE, JESSE, Fort Wayne, Ind., Mayor-elect, has announced the selection of his official cabinet, as follows:

Board of Public Works, Henry F. Hilgerman, Frank T. Bench and Edward J. Lenzen.

Board of Public Safety, James M. Henry, Joseph C. Hutzell and W. D. Henderson.

Clerk of Boards, Henry W. Becker.

City Attorney, Harry G. Hogan.

City Controller, W. Sherman Cutshall.

Secretary of Water Works Department, Martin Detzer.

Weighmaster, John Cook.

City Civil Engineer, Frank M. Randall.

Chief of Police, William F. Borgman.

ELLIOTT, LAFAYETTE, Eau Claire, Wis., has been appointed Chief of Police, succeeding E. J. O'Brien, resigned.

FISCHER, CAPT. ERNST, Hoboken, N. J., has been appointed a Police Commissioner, succeeding Oscar Frommel, resigned.

JAMES, HARRY, Dunkirk, N. Y., Mayor-elect, has named Richard H. Heppell as City Clerk.

HARA, DR. RYOTA, Yokohama, Japan, Chief Engineer, is making a tour of American cities to study their public works.

HAGUE, CHARLES A., New York, has delivered a lecture recently on the development of the pumping engine at the Sheffield Scientific School, Yale University. The lecture was illustrated by lantern slides of pictures and drawings collected by the author while engaged in writing his well-known treatise on "Pumping Engines for Water Works."

LEMON, JAMES, London, England, M. Inst. C. E., one of the founders of the Incorporated Association of Municipal and County Engineers, has been knighted by King Edward in recognition of his professional and public services. He began his engineering career as an assistant to Sir Joseph Bazalgette on the public works of London. In 1866 he was appointed borough engineer of Southampton, a position he held for twelve years, resigning to take up private practice. In 1883 he became a member of the Corporation Council of that city and in 1891 was elected Mayor. After his term in that office he became an Alderman and served as such until 1900, when he retired from private practice.

LEHAN, CAPT. TIM, Louisville, Ky., Capt. Gregory Shehan, Capt. Mike Cassin and Capt. Pat Carroll have been appointed assistant chiefs of the Fire Department.

MORSE, W. F., New York, N. Y., delivered a lecture, November 26, before the Town Council of Montclair, N. J., on the question of garbage and rubbish disposal.

O'CONNOR, THOMAS E., Hibbing, Minn., chief of the Fire Department, has resigned and will become chief of the Fire Department at Chisholm.

PENCE, PROF. W. D., Madison, Wis., chief engineer of the State Railway Commission, is making an appraisal of the Milwaukee Water Works.

POTTER, ALEXANDER, New York City, has been retained by the city of Ely, Nev., to co-operate with Alfred B. Colwell, City Engineer, in the preparation of plans for a sewage disposal plant.

SIMPSON, JOSEPH W., Franklin, Ind., City Marshal, has resigned and it is understood that he will be succeeded by James S. Sandefur, Deputy Marshal.

TIFF, NELSON F., Albany, Ga., has been nominated without opposition in the primary as Mayor, which is considered equivalent to election. He is also chairman of the Board of County Commissioners and will be the only man who ever held both positions.

WALDRON, THOMAS J., Gloucester, Mass., Chairman of the Board of Water Commissioners, has resigned.

TRADE NOTES

Cast-Iron Pipe.—Chicago: Quotations: 4-inch, \$28.50; 6 to 12-inch, \$27.50; 16-inch and up, \$26.50. Birmingham: It seems probable that prices will be raised before large contracts are let in the spring. San Francisco: Municipalities are generally specifying cast-iron pipe where steel would formerly have been required. Small orders are coming in at a good rate. New York: The usual slowing-down in the closing weeks of the year is noted. Quotation: 6-inch, carload lots, \$26.

Lead.—The demand for lead is very light. There has been some talk of price cutting in St. Louis, but in New York the outside interests are keeping their price up to that made by the American Smelting and Refining Company, which is still 4.40c. In St. Louis the price is 4.27½c, and sales were made during the week at 4.25c, but mostly outside lots.

Balloon Business for Gas Company.—The Pittsfield, Mass., Gas Company has announced that it will soon erect at Aero Park a large balloon shed for the accommodation of balloonists. There are to be five rooms in the structure, each large enough to store a balloon and all its appurtenances, a large attic, where balloons may be repaired, and other apartments to be used by aeronauts. The company is now erecting a 250,000-cubic-feet gas-holder, which, with the two already in use, will enable the company to furnish balloon gas at any time and in large quantities. When the improvements are completed early in the year Pittsfield will offer the best ballooning facilities of any city in New England.

Street Railway Equipment.—William Northrup, president of the Virginia Railway and Power Company, a Gould property, operating the combined street railways of Richmond, Manchester and Petersburg, Va., has announced that his company will shortly expend \$600,000 in improvements much the greater part of which will be devoted to the railway department. This large expenditure was authorized at a recent meeting of the directors, and is to be devoted in part to the purchase of 20 semi-convertible, double-truck, pay-as-you-enter cars of improved type, to take care of the increased travel in Richmond. Forty sets of new motor equipment will be purchased for the cars now in service, which will be made practically new and up to date.

Concrete Piles.—The Raymond Concrete Pile Company, New York, N. Y., has published a 26-page illustrated pamphlet, giving a comprehensive account of Baltimore's municipal dock improvements, including both the financial and engineering features of the work. Eight piers and docks were built and the rental price fixed at 36 cents per square foot, an income sufficient to pay all charges connected with a \$6,000,000 bond issue, including sinking fund charges. The concrete sheet piles were cast at the site in ordinary wooden molds, and after seasoning not less than 28 days were ready for use. They were driven to place by a water jet, and the weight of a 6,000-pound hammer seated on them.

Stone Crushers.—New machinery for its crushing plant will be purchased by the Western Granite Company, St. Cloud, Minn. Some additional machinery will be added about January 15 to the crushing outfit of the Los Angeles, Cal., Stone Company.

Filtration Plant.—The New York Continental Jewell Filtration Co., New York, N. Y., has submitted a proposition to the city of Lynn to construct a reinforced concrete mechanical filtration plant having a minimum capacity of 10,000,000 gallons in twenty-four hours, with sedimentation basin of a capacity equal to two hours' sedimentation and a clear water basin of 1,250,000 gallons capacity, with necessary appurtenances, for the sum of \$198,000. The water furnished is guaranteed to be clear, bright, colorless water, practically free from turbidity and matters in suspension, color in the water not to exceed 15 on the platinum cobalt scale; the filtered water shall not contain more than an average of 50 bacteria per cubic centimeter and be free from all pathogenic bacteria.

City Advertising.—In line with its policy to boom Scranton, the Scranton Electric Company has let a contract for the placing of a large electric fountain sign on top of the Board of Trade Building. The sign will be raised 20 feet above the roof and will be visible from all parts of the city. The contract for the sign was let at a price of \$3,000 to an Atlantic City sign company. The fountain will, by means of an intricate system of lighting, be made to represent a spray of constantly flowing water in various colors. Across this spray the city's slogan, "Watch Scranton Grow," will be outlined in miniature lights. To further set off the sign the building will be outlined with many small lights in addition to those at present used, making it one of the most brilliantly illuminated in the world.

Mechanical Stokers.—The Meadville, Pa., water pumping station has been equipped with a mechanical stoker. It is expected to save to the city in the cost of fuel used at the pumping station about 40 per cent, including the cost of the stokers, about \$1,400 and their care. The city has been using Pittsburg run-of-the-mine coal, at a cost of about \$2.15 a ton. It is expected to use slack with the mechanical stokers, which costs from \$1.35 to \$1.65 a ton, and is claimed to give as good results in steaming as the higher-priced coal when shoveled by hand. At present the Pittsburg slack is being used, and later the Butler County slack, a still cheaper grade, will be given a trial.

Road Scrapers.—The Kansas City Steel Scraper Company, Kansas City, Mo., has been organized to take over the business of the Slusser-McLean Scraper Company of Sidney, O. The new company has purchased 30 acres of ground at Steelton, Kansas City, Mo., where it will erect a new plant to consist of 11 buildings of fireproof construction, having steel frames, brick walls, metal skylights and concrete floors. The new plant will have a daily capacity of five carloads of steel scrapers, trucks, etc., in addition to the output of the car shops. The estimated cost of the new buildings and equipment is \$750,000. Edwin N. Miller is president; D. B. Wallis, treasurer, and Amos Townsend, secretary.

Industrial Cars.—The Ohio Ceramic Engineering Company, Cleveland, O., publishes a catalogue illustrating a line of industrial cars useful in contractors' plants and storage yards. The company carries in stock light sizes of rail, portable tracks and switches. The line of cars include the following types: Rotary scoop, either side rocker dump cars, wood body end dump, steel body end dump, rotary end dump, platform, racks and transfer cars.

MUNICIPAL APPLIANCES

One-Horse Street Cleaner

THE Menzies Street Cleaner Company, Glens Falls, N. Y., manufactures a one-horse street cleaner which is claimed to clean streets very economically. It consists of a frame made of steel supported by 30-inch wooden wheels. The revolving broom is contained in a galvanized iron compartment, where the refuse is delivered into a pan. When this pan is nearly full the driver, by means of a lever, discharges the contents into ash cans and the pan is returned to its former position. This operation may be performed when the machine is in motion or at rest. When the ash cans are filled they may be removed and replaced by empty cans. The broom is 42 inches wide. If a horse travels at the rate of three miles an hour the machine will sweep 100 yards of surface per minute. This one-horse sweeper may be used in many places where a two-horse sweeper would interfere with traffic and be impracticable. The revolving broom being enclosed in a hood prevents the dust raising, which is one of the chief objections to the ordinary horse sweeper.

Triple Auto Fire Apparatus

THE Howe Engine Company, Indianapolis, Ind., a firm with twenty-six years of experience in building fire engines, has recently completed and shipped to Ventura, Cal., a fire apparatus which is the equivalent of a steam fire engine, a chemical engine and a hose wagon combined. The engine consists of a 60-75-horsepower six-cylinder motor mounted on a specially built heavy pressed steel chassis with solid wire mesh base rubber tires on the wheels. It weighs 6,420 pounds. The pumping engine is a double triplex brass cylinder pump equal in capacity to a third-class steamer. The hose body carries 1,000 feet of hose. The chemical apparatus consists of a forty-gallon lead-lined chemical tank with usual equipments. The machine has a speed on level roads of from four to forty miles an hour. At a recent test the engine threw three streams to a height of more than 125 feet when drawing water from a cistern. After operating the machine for an hour the man in charge stated that he could just as well run it for ten hours if required.



PICK-UP STREET CLEANER

The Warrenite Road

WARREN BROTHERS COMPANY, 93 Federal street, Boston, Mass., has submitted for the consideration of highway commissioners, county officials and others, desirous of securing a substantial bituminous roadway at a less cost than that usually paid for city pavements, the specifications for a new road which they call "Warrenite." The construction of the pavement incorporates the patented features of "Bitulithic" and eliminates some of the expensive details. The foundation is of broken stone six inches in thickness. Stone screenings are to be spread over this before the rolling, but not in such great quantity as to cover the coarse stone, which it is desired should project so as to interlock with the surface mixture. A grouted stone base is suggested as an alternative foundation. The specifications for the wearing surface are as follows:

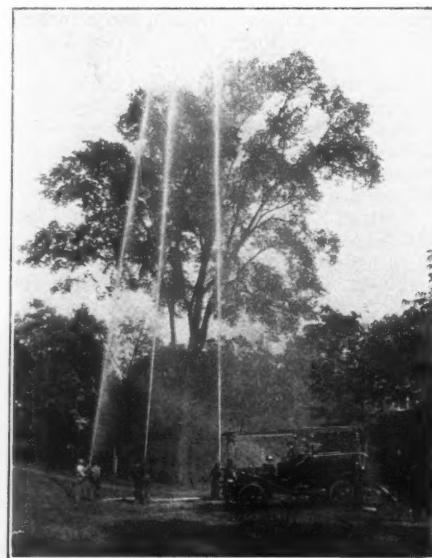
On either foundation prepared as above shall be laid the surface of Warrenite, made of crushed stone varying in size from a maximum, passing 1½-inch openings, to a minimum of pulverized stone passing a screen having 40,000 meshes per square inch. The varying sizes of crushed stone are to be so proportioned as to give the structure a maximum degree of density and inherent stability and low percentage of voids; the combination of varying sizes of stone to be thoroughly incorporated with Warren's Puritan Brand Bituminous Cement, or Bitulithic Cement in such proportion as will fill the voids and thoroughly coat each particle of stone in accordance with F. J. Warren Patents Nos. 727,505 and 675,430.

The mixture of stone and bitumen prepared as above shall be spread on the foundation to a thickness of two inches, and then thoroughly compressed with a steam roller.

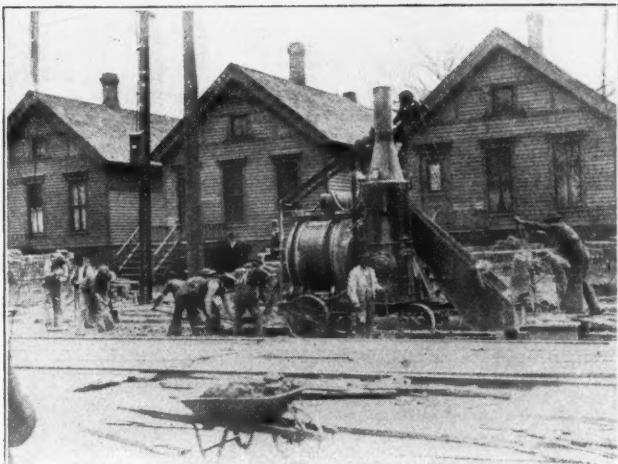
After rolling the wearing surface there shall be spread over it a thin coating of Warrenite Flush Coat Composition, in accordance with patent No. 695,422, by means of a suitable flush coat spreading machine, so designed as to spread quickly over the surface a uniform thickness of flush coat composition. This spreading machine shall be provided with a flexible spreading band and an adjustable device for regulating to any desired amount the quantity and uniformity of flush coat composition to be spread.

There shall then be spread over the entire surface a layer of fine crusher screenings or coarse sand in sufficient quantity to completely cover the surface of the pavement to a depth of three-eighths of an inch. The stone chips or sand shall be spread by means of a suitable spreading machine, so designed as to provide a storage receptacle of at least 5 cubic feet capacity and to rapidly and uniformly cover the surface of the pavement with the desired quantity of stone or sand. This spreading machine shall be provided with an adjustable attachment for regulating uniformly the quantity of stone or sand spread at each operation. The stone chips or sand shall be immediately and thoroughly rolled into the surface.

On grades of over 4 per cent the Warrenite Flush Coat Composition and stone chips, or sand, may be mechanically mixed before application, in place of the liquid flush coat and stone chips above specified.



AUTO ENGINE THROWING WATER



CONCRETE MIXER EQUIPPED FOR PAVING PURPOSES

Koehring Concrete Mixer

THE Koehring mixer is of the ordinary cylindrical drum type and does not tilt to discharge. The heads are of cast-iron made in one piece, with large rounded corners. The runways for the trunnions and the big gear also are cast in one piece with the heads. Around the charge and discharge openings are flange or splash rings. The heads are flanged and turned true to fit the extra heavy steel shell which is riveted to it. All pinions are of cast steel. All shafting is heavy and bearings are babbited with special metal. Trunnion rollers of large diameter are close to the ends of the drum to give it a stable equilibrium. The blades and scoops are riveted to the cylinder of the drum and rounded in a peculiar manner. The blades are placed diagonally across and through the material first one way and then the other. The scoops pick up the material and throw it into the discharge chute, which in turn throws it back into the drum, or out of it, depending upon the way the discharge chute is inclined. The arrangement of the blades gives the material an end to end mixing. The discharge chute is made in two segments and is sufficiently high from the ground so that a wheelbarrow can be run under it. The section outside the drum is stationary. The inside section tilts upward when the material is not wanted and is controlled by a lever. For direct loading by laborers the mixer is equipped with a batch hopper bin which allows the men to work continuously. The gate from the hopper to the mixer is controlled by a lever with an eccentric arm. Instead of this hopper the mixer may be provided with an elevating charging bucket. The bucket can be filled, while a batch is being discharged from the drum, and as soon as the drum is empty the bucket is hoisted into a discharging position and the entire batch discharged into the drum. The bucket can be elevated in five seconds. Movable partitions can be placed in the elevating bucket and the material shoveled directly into the pockets so formed, in proper proportions. The bucket is elevated by two wire cables fastened to the extreme outer corner of the bucket, from which they pass over a sheave to the winding drums. These drums are layed onto a shaft, which is driven by gearing from the main driving shaft, and is operated by a friction clutch. The bucket is lowered by releasing the brake. An automatic stop throws out the clutch when the bucket is in position.

Rock Crusher and Pulverizer

THE Universal Road Machinery Co., 120 Liberty street, New York, N. Y., for the purpose of meeting a demand for a larger proportion of fine crushed rock in certain classes of road work manufactures a crusher which is equipped with interchangeable crushing and pulverizing plates. This machine should be useful to makers of bituminous macadam roads where an excessive amount of fine material is needed to fill voids throughout the road or to sprinkle over the surface. As shown in the cut the crusher is of the jaw type and is of strong and substantial construction throughout. It may be mounted permanently or as a part of a portable outfit consisting of engine and boiler, crusher and screen and storage bin. The frame and working parts being each a solid casting of open hearth steel are practically unbreakable. The forgings and shafts are of the best quality open hearth hammered steel of special carbon. The journals are extra large and well protected, and are provided with ample means for lubrication. The jaw plates are of manganese steel, a material which combines the qualities of hardness and toughness, and is therefore specially adapted to this service. Every part subject to wear is easily accessible and can be readily renewed. With the pulverizing plates, it is claimed, the machine will crush rock and other material at one operation so that the entire product will range from quarter inch size to dust. The crusher sets low to the ground and so reduces the cost of feeding.

The Koehring street paving mixer shown in the illustration is built entirely of steel and iron and has a water measuring tank. It is provided with a traction drive for moving along the street. The reproduction is from a photograph taken when the machine was in operation in Milwaukee. The paving contractor in charge of the work gives detailed figures showing that the labor charge was 5.8 cents per square yard. Even better results than this, it is claimed, have been attained.

Blue Printing Machine

THE Buckeye Engine Company, of Salem, O., in a catalogue illustrating and describing the Buckeye electric blue printing machine, gives the following statement of cost of making blue prints on a sun print frame and on the Buckeye. The figures are actual cost of work done by a firm of bridge builders. They are quite large producers of blue prints, but could not make their largest prints on sun printing frames, which necessitated having part of the work done by outside parties.

During the month of September they made 9,412 square feet of blue prints, 6,000 square feet on their own sun print frames, 2,812 square feet by outside parties. The cost was as follows:

6,600 sq. ft. paper (6 1-3 rolls)	\$22.16
at \$3.50	60.00
Labor	
2,812 sq. ft. done outside	

at 3c. 84.36

\$166.52

During the month of November they used a Buckeye electric blue printing machine, and made 10,996 square feet, at the following cost:

10,996 sq. ft. paper (10 1/2 rolls)	\$36.75
at \$3.50	60.00
Labor	5.38

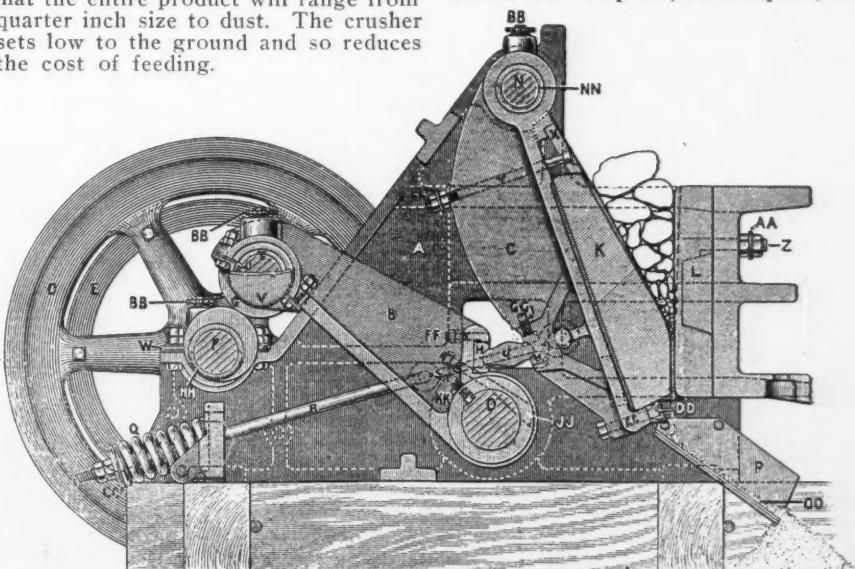
\$102.13

Amount saved \$64.39

It will be noted that 1,584 square feet more were made in November than September. In 13 weeks the machine paid for itself, and the young man who operated the machine, filed blue prints, etc., had an hour or two extra a day to do tracing.

Harris Air Lift

THE main principle of the Harris air lift is familiar and simple. Air under pressure is delivered through an air pipe and connected to the side of a footpiece which is submerged in the well, and having a water discharge pipe leading from the center of the device to the surface or point of discharge. After the standing water column has been thrown off, the air rises with the water, reducing its weight, with the result that the water is expelled as fast as the well supplies it, and the water outside the pipe acting as a head, flows into the discharge pipe by the force of gravity. The apparatus is manufactured by the Harris Air Pump Co., Indianapolis, Ind.



ROCK CRUSHER AND PULVERIZER

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Illinois	East St. Louis	Dec. 10	Vit. brick paving on concrete base; cost, \$90,000.	W. J. Crocken, City Engineer.
Illinois	Streator	Dec. 10, 2 p.m.	Improving North Park st., on concrete; also So. Illinois st.	P. J. Lucey, Chm. Bd. Loc. Imp.
Arizona	Phoenix	Dec. 10, 2 p.m.	Bldg. 6 5-8 miles oil macadamized road; Board supply material.	G. M. Halm, Chm. Rd. Dist. No. 1.
Virginia	Richmond	Dec. 11	Bldg. macadam road 2.6 miles long at Pulaski.	P. St. J. Wilson, State Hwy Com.
Nebraska	Omaha	Dec. 13, 2 p.m.	Grading Larimore ave.	G. L. Campen, Asst. City Engr.
Texas	Houston	Dec. 13, 4 p.m.	Brick paving San Jacinto, Main, Travis sts.; Wabash ave.	T. C. Tarver, City Engineer.
New York	New Br'ton, S. I.	Dec. 14	Furnishing 15gross ton steam road roller.	Geo. Cromwell, Pres. Boro. Richdm'd.
Kansas	Ottawa	Dec. 15, 5 p.m.	Macadamizing 55,000 sq. yds. on 38 blocks; also 20,000 lin. ft. concrete curb and gutter on 6 streets.	A. H. Slater, Mayor.
Florida	St. Petersburg	Dec. 15	Brick paving, 15,000 sq. yds.; granite curb, 2,270 lin. ft.	W. J. Overman, City Engr.
North Carolina	Wilson	Dec. 15	Macadamizing 8 to 10 miles of road.	J. C. Hales, Sec'y Twp. Rd. Com'r.
New Jersey	Flemington	Dec. 16, 11 a.m.	Bldg. Asbury Ludlow Station road; Grant Davis, Co. Engr.	J. W. Sharp, Director of Freeholders.
Ohio	Shawnee	Dec. 17, noon	Vitrified brick paving on Main street.	John D. Davis, Village Clerk.
Indiana	Lebanon	Dec. 17, 7:30 p.m.	Constructing sidewalks on Park street.	Edmund Conner, City Clerk.
Illinois	Piper City	Dec. 18	Brick paving, 8,231 sq. yds. on 6-in. concrete curb, 2,572 ft.	N. G. Plank, City Clerk.
Colorado	Golden	Dec. 18	Bldg. permanent driveway or boulevard.	C. W. Comstock, State Engr.
Ohio	Bowling Green	Dec. 20, noon	Improving Byall ave from Main to Summit street.	Alex. Williamson Clk. B. P. S.
Pennsylvania	Johnstown	Dec. 21, 3 p.m.	Paving 53 sts., avenues, alleys, etc.	Lee Masterton, City Engineer.
Alabama	Huntsville	Dec. 28	Paving 20,600 sq. yds., any material; curb, gutter, 11,200 lin. ft.	Thomas W. Smith, Mayor.
SEWERAGE				
Illinois	East St. Louis	Dec. 10	Bldg. \$50,000 sewer system in Illinois ave.; 15-24-in. pipe.	W. J. Crocken, City Engineer.
Ohio	Elmwood Place	Dec. 10, noon	Bldg. sewers, disposal plant, flushing tunnels, drains, ditches and appurtenances.	T. T. McQueen, Clk. of Council.
Illinois	Chicago	Dec. 11	Bldg. tile sewer in Grove st. and Lafayette ave.	John J. Hanberg, Com'r Pub. Wks.
Texas	Houston	Dec. 13, noon	Bldg. sanitary sewers in Fifth Ward: 3,065 ft. 30-in., 2,850 ft. 24-in., 1,375 ft. 20-in., 11,151 ft. 15-in., 1,552 ft. 12-in., 1,450 ft. 10-in. vitrified pipe.	Dan. C. Smith, Jr., City Clerk.
Nevada	Carson City	Dec. 13, 7 p.m.	Bldg. sewers in Plaza and Rice streets.	E. O. Patterson, City Clerk.
Oklahoma	Oklahoma City	Dec. 13	Bldg. Military ave. main storm sewer; also 3 laterals.	Bob Parman, City Clerk.
Illinois	Chicago Heights	Dec. 14	Sewer work: 998 ft. 36-in. and 3,399 ft. 30-in. monolithic concrete sewer; 2,866 ft. 24-in., 2,367 ft. 18-in., 6,742 ft. 15-in. vit. tile sewer; 148 catch basins, 57 manholes.	A. L. Fox, City Engineer.
Iowa	Clinton	Dec. 14	Constructing a sewer.	Wm. E. Hayes, City Clerk.
Kentucky	Louisville	Dec. 17, noon	Bldg. 21st st. sewer; Contract 58: 2,150 ft. 60-in. rein. concrete, 1,566 ft. 48-in. unrein. conc. inc. 3,746 ft. earth excav., 7 to 30 ft. deep, 970 cu. yds. rein. concrete, 520 cu. yds. unrein. concrete, 60,000 lbs. steel reinforcement.	P. L. Atherton, Chm. Sewer Com'n.
Oklahoma	Oklahoma City	Dec. 20	Bldg. Deep Fork sewage disposal works, septic process, etc.	Bob Parman, City Clerk.
Idaho	Blackfoot	Dec. 21	Bldg. \$41,000 sewer system; plans by L. C. Kelsey, Salt Lake.	C. W. Berryman, Chm. Sewer Com.
New York	Gloversville	Dec. 21	Constructing a sewage disposal plant, inc. 1,000 ft. of outfall sewer, 4 settling tanks, 3 acres each of sprinkling and sand filters and sludge beds; pipe lines, appurtenances, etc.; Harrison P. Eddy, Cons. Engr., 14 Beacon st., Boston, Mass.	Morrell Vrooman, City Engr.
Michigan	Muskegon	Jan. 3	Finishing uncompleted sewer in Dist. No. 7.	B. H. Tellman, City Recorder.
WATER SUPPLY				
Minnesota	Minneapolis	Dec. 10	Furn. and install. 2 boilers at Northeast pumping station.	Henry N. Knott, City Clerk.
New York	New York	Dec. 13	Driving well at School 120, Barren Island, Brooklyn Boro.	C. B. J. Snyder, Supt. School Bldgs.
Ohio	Cincinnati	Dec. 13, noon	Laying water mains at Mt. Echo Park.	M. C. Longenecker, Sec'y Park Bd.
Missouri	Kansas City	Dec. 13, 2 p.m.	Furn. and erect. horizontal, cross compound crank and fly-wheel condensing pumping engine, complete, at Quindaro.	Board of W. W. Trustees.
Colorado	Ft. Logan	Dec. 14, 9 a.m.	Bldg. pump house, also elec. wiring, boilers, etc.; air compressor, steam pumps and piping; also alternate bids.	Capt. Chase Doster, Constr. Q. M.
Illinois	Bloomington	Dec. 14	Constructing a large well; F. H. Lamp, Supt. W. W.	H. W. Ulbrich, Chm. Water Board.
Nebraska	Belden	Dec. 15, 1 p.m.	Bldg. stand pipe and foundation, installing pipe, valves, hydrants, etc.; open well and triple deep well pump; A. C. Koenig, C. E., Bee Bldg., Omaha.	F. B. Barber, Village Clerk.
Kansas	Erie	Dec. 15	Bldg. \$50,000 w. w. and elec. light plant; Burns & McDonnell.	J. C. Demons, City Clerk.
California	San Francisco	Dec. 15	Bldg. pumping station at Second and Townsend streets.	Marsden Manson, City Engineer.
Wisconsin	Stoughton	Dec. 15, noon	Drilling an artesian well for city.	L. C. Currier, City Clerk.
New York	Buffalo	Dec. 16	Bldg. 12-in. high-pressure fire pipe line and conduit.	F. G. Ward, Com'r Pub. Wks.
Kansas	Marion	Dec. 16	Furn. material and bldg. water works and elec. light plant.	Thos. W. Boun, City Clerk.
New York	New York	Dec. 16, 11 a.m.	Bldg. Grassy Sprain and Ardsley cut and cov. and Platt ave. siphon; 24,400 plain concrete conduit in open cut and an embankment, 17 1-2 ft. high by 18 ft. wide; also 138 ft. rein. concrete aqueduct of special design.	Board of Water Supply.
Minnesota	Minneapolis	Dec. 17, 7:30 p.m.	Furn. 1,800 tons c. i. water pipe and 125 tons specials.	Andrew Rinker, City Engineer.
Texas	Atlanta	Dec. 20	Constructing water works and furnishing 2 gas engines, 2 pumps, 1 air compressor, etc.; Fountain-Shaw Co., Houston, Engineers.	Hugh Carney, City Secretary.
Louisiana	Alexandria	Dec. 20	New work at water and light plant; cost, \$40,000.	I. W. Sylvester, City Engineer.
New York	New York	Dec. 21, 11 a.m.	Bldg. Kensico dam, high masonry dam over valley of Bronx river, etc., inc. New Rye reservoir and dike; Bronx-Rye tunnel, Bronx dike and Rye pipe line.	J. Waldo Smith, Ch. Engr. B. W. S.
Oklahoma	Fort Sill	Dec. 23	Sinking a tubular well at Fort Sill.	Capt. David L. Stone, Constr. Q. M.
Michigan	Detroit	Dec. 28, noon	Furn. and erect. structural steel and iron work for engine room building of new pumping station.	Benj. F. Guiney, Sec'y Water Board.
Philippine Is'ds.	Manila	Dec. 29, 11 a.m.	Installing distribution system of Manila gravity water supply; \$5,000 deposit with each bid.	Municipal Board of Manila.
Minnesota	Foley	Jan. 1, 7 p.m.	Building complete water works system; cost, \$7,000; old bids rejected; O. Claussen, C. E., Nat'l Ger.-Am. Bk. Bldg., St. Paul	Frank J. Kotsmith, Village Recorder.
Nebraska	Carroll	Jan. 11	Constructing water works; previous bids rejected.	City Clerk.
BRIDGES				
Virginia	Richmond	Dec. 11	Bldg. steel bridge over State river, Buckingham Co.	P. St. J. Wilson, State Hwy. Com'r.
Ohio	Mansfield	Dec. 14	Constructing 112-ft. truss bridge.	C. L. Bushey, County Surveyor.
New York	New York	Dec. 14, 2 p.m.	Bldg. steel and timber trestle at Kent ave. bridge, Brooklyn.	J. W. Stevenson, Com'r of Bridges.
New York	Buffalo	Dec. 15, noon	Bldg. highway bridge over Erie canal at Ga. st.; \$17,260.	F. C. Stevens, State Supt. Pub. Wks.
Washington	Tacoma	Dec. 15, 11 a.m.	Material and labor for bldg. \$60,000 concrete girder bridge over gulch between Fife and Oakes sts.; 7 span, 360 ft. long.	H. J. McGregor, Com'r Pub. Wks.
Ohio	Lockland	Dec. 17	Bldg. concrete bridge over Mill creek at Benson st.	Fred. Drehs, Clk. Co. Comrs.
Washington	Colfax	Dec. 20	Bldg. two 130-ft. riveted steel truss bridges.	John M. McCaw, County Engr.
California	Merced	Jan. 4, 10 a.m.	Bldg. steel bridge over Merced river road, Dist. No. 4.	P. J. Thornton, Clk. Bd. Supervisors
Nebraska	York	Jan. 11, noon	Bldg. steel and wooden bridges ordered by County in 1910.	W. A. Miller, County Clerk.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
LIGHTING AND POWER				
Ohio	Columbus	Dec. 10	Power equipment for plant for State Penitentiary, inc. dir. con. units of a. c. generators and cross compound Corliss engine, 2 turbo-generators, 2 boiler-feed pumps, water feed heater, electric traveling crane, 4 automatic stokers.	Osborn Eng. Co., Cleveland.
California	Sacramento	Dec. 13	Lighting sts. and city depts. for one year from Dec. 31.	M. J. Desmond, City Clerk.
Indiana	New Albany	Dec. 14	Lighting sts., alleys and public places of city for 10 years from Sept. 1, 1910; \$10,000 check with bids.	John C. Short, City Clerk.
Virginia	Richmond	Dec. 14	Bldg. electrical transmission lines for city.	E. E. Davis, Supr. Water Dept.
Pennsylvania	Nanticoke	Dec. 14	Light sts. with elec. arcs for 1, 3 and 5 yrs., from May 1, 1910.	Clem J. Knoll, Boro. Sec'y.
Kansas	Erie	Dec. 15	Bldg. \$50,000 electric light and water plant.	Burns & McDonnell, Scarrett Bldg., Kansas City, Mo., Engineers.
New York	Kings Park	Dec. 15, 3 p.m.	Bldg. power plant, con. mains, dis. board, cables, etc.	State Com'r in Lunacy, Albany
New York	Brooklyn	Dec. 15	Ins. al. in gasan i elec. fix. ures new public bath.	Bird S. Coler, Boro. President
Indiana	Indianapolis	Dec. 20	Furnishing and hanging, complete, all electric and gas lighting fixtures for new city hall.	C. W. Bookwalter, Mayor.
Louisiana	Alexandria	Dec. 20	New work at light and water plant; cost, \$40,000.	J. P. Turregano, Mayor.
Maryland	Ft. Washington	Dec. 27	Constructing electric light system at Fort.	Capt. H. L. Pettus, Q. M., Takoma Park.
MISCELLANEOUS				
Massachusetts	Boston	Dec. 10	Furnishing new fire boat; Arthur Binney, Designer.	Fire Commissioner Parker.
Pennsylvania	Philadelphia	Dec. 10	Bldg. substructure of Vine st. pier; \$300,000 available; to provide for sewer through pier; \$400,000 superstructure later.	Acting Dir. Hasskarl of Dock Dept.
Ohio	Cincinnati	Dec. 13	Grading, landscaping, etc., Hubbard Tract.	M. C. Longenecker, Sec'y Park Bd.
Massachusetts	Boston	Dec. 13, 2 p.m.	Bldg. open shelter 33 x 104 ft. on dam in Charles river; ornamental c. i. columns, with steel frame roof, planked and covered with copper, pile foundation and rein. concrete floor.	Charles River Basin Comm.
Ohio	Cincinnati	Dec. 14	Furn. f. o. b. Cincinnati 3 or more one-horse and 3 or more two-horse flushing machines.	J. J. Wenner, Clk. Bd. Pub. Service.
Ohio	Walbridge	Dec. 14	Erecting a Town Hall for Lake Township.	N. A. McAllister, Clk. Twp. Trustees.
Ohio	Columbus	Dec. 14, noon	Dredging Ohio Canal from Lock 5A to Lock No. 10.	C. E. Perkins, Ch. Engr. Pub. Wks.
Oregon	Ontario	Dec. 14	Electric railway franchise, applied for by D. G. Sutherland.	The Mayor.
Illinois	Chicago	Dec. 15, noon	Dredging river channel of So. br. of Chicago river from Lake st. to Robey st., excavating adjacent to river, etc.	I. J. Bryan, Clk. Sanitary Dist.
Wisconsin	Milwaukee	Dec. 17	Competitive sketch plans, etc., for public natatorium; cost, including architect's fees, \$38,000.	C. J. Poetsch, Chm. Bd. Pub. Wks.
Ohio	Cincinnati	Dec. 17	Bldg. concrete retaining wall on Princeton pike.	Fred. Drehs, Clk. Co. Comrs.
Oregon	Portland	Dec. 20	Constructing garbage crematory; \$150,000 bonds voted.	City Comptroller.
New Mexico	Estancia	Dec. 20	Constructing a County Court House.	E. W. Robertson, Probate Clerk.
Florida	Pensacola	Dec. 20, 8 p.m.	Erecting building for a Court House; cost, \$85,000.	Jas. MacGibbon, Clk. Co. Comrs.
California	Oakland	Dec. 22, 10 a.m.	Furn. comb. chem. and hose wagon and 3rd size fire engine.	W. B. Fawcett, Sec'y Bd. Pub. Wks.
California	San Francisco	Dec. 22	Furnishing fire hose for auxiliary fire system.	Marsden Manson, City Engineer.
Massachusetts	Springfield	Dec. 22, 3 p.m.	Excavation, mason work, etc., for auditorium, tower and passage, Municipal Bldg., and terrace and steps of new Municipal bldgs.; Pell & Corbett, 122-124 E. 25th st., N. Y. City, Archts.	Municipal Bldg. Commission.
New York	Albany	Dec. 28, noon	Contract No. 44, Erie Canal, Section 5.	F. C. Stevens, State Supt. Pub. Wks.

STREET IMPROVEMENTS

Birmingham, Ala.—Mayor Frank P. O'Brien will receive estimates on machinery for paving plant of 1,000 yds. daily capacity.

Ensley, Ala.—Council has passed ordinance providing for paving portion of Ave. E.

Phoenix, Ariz.—Board of Trustees of Central Ave. Road District has adopted plans and specifications for building of road in Central ave.; \$30,000 is available.—Maj. E. M. Lamson, Chairman.

Alhambra, Cal.—Citizens have voted \$50,000 municipal improvement bonds.

Berkeley, Cal.—Council will consider widening of Claremont ave. from 60 to 80 ft.

Santa Cruz, Cal.—Advisory Committee has recommended that all accepted streets be put in good condition and that both Cliff Drive and East Cliff Drive be turned back; issuance of \$250,000 is favored.

South Pasadena, Cal.—Citizens will vote on \$100,000 bonds to macadamize all principal streets of town and to install sewer system.

Tulare, Cal.—Bids for construction of proposed Sandy Creek rd. have been received; estimated cost \$19,920.

Vallejo, Cal.—Mayor J. J. Madigan will have steps taken at once towards establishing grades of the streets of this city, in order that the paving may be taken up as soon as weather conditions permit.

Denver, Col.—Bids have been rejected for furnishing material for grading and park-ing roadway and sidewalk areas, paving and roadway areas, constructing concrete curb and guttering Montclair Parkway Suburban Improvement District No. 1.

Hartford, Conn.—Board of Public Works is considering laying of curb and macadamizing East Main st.; Board has estimated the cost of extending Beaver st. to Myrtle st. at \$16,000.

Norwalk, Conn.—City is planning paving of West ave. with brick.

South Norwalk, Conn.—Extension of Stuart ave. to West st. is being considered.

De Land, Fla.—Volusia County will vote on \$250,000 road bonds.

Jacksonville, Fla.—Board of County Commissioners has ordered county engineers to advertise for two 11-ton Goss line rollers of standard type, to be used in constructing and maintaining hard surfaced roads.

Pensacola, Fla.—Tarragona st. will be paved with brick.

Pensacola, Fla.—Board of Works is considering paving of Palafox st. with new material.

Macon, Ga.—Bibb County will consider \$100,000 bond issue for road improvements.—W. M. Mansfield, Chairman County Road Board.

Belleville, Ill.—Council has ordered Board of Local Improvement to proceed with the preparation of plans for paving and sewerizing West Main st.

Chicago, Ill.—Garfield Improvement Association is urging paving of 56th st.

Chicago Heights, Ill.—Board of Local Improvements has instructed City Engineer A. L. Fox to prepare plans and specifications for brick pavement, on concrete foundation, asphalt or tar fill, on four streets, approximately 40,000 sq. yds.

East St. Louis, Ill.—Council has passed ordinance providing for paving portion of 25th st., and construction of a steel and concrete bridge over lagoon near Lincoln ave.; probable cost \$54,000.

Moline, Ill.—Seventh Street Improvement Association is considering proposition to improve 7th st. from city limits to Black Hawk rd.

Peoria, Ill.—Council is considering ordinance for paving North Jefferson ave.; cost of resurfacing avenue is estimated at \$39,031.

Streator, Ill.—City proposes to lay about 10,786.9 sq. yds. brick pavement at a cost of about \$20,044.—F. W. Herbert, City Engineer.

Waukegan, Ill.—Council has decided to call an election on \$30,000 improvement bonds.

Hammond, Ind.—County Commissioners will improve Kennedy ave.

Indianapolis, Ind.—Board of Public Works has adopted six street improvement resolutions.

Indianapolis, Ind.—Board of Works has adopted resolutions for paving Gladstone st. and improving 30th st. with bitumen roadway and curb.

Indianapolis, Ind.—Board of Public Works has ordered plans prepared for opening Worth st. and for cement walks on Gray st.

South Bend, Ind.—Board of Public Works has ordered Engineer Hammond to prepare plans for tarvia macadam pavement on East Navarre st.

Davenport, Ia.—City is considering repaving of Brady st.

Harian, Ia.—City will pave about 21 blocks at a cost of about \$150,000.—P. I. Petersen, Engineer.

Mason City, Ia.—Council has decided to pave Miller st.; also to construct lateral sewer.

Lexington, Ky.—Legislature will consider bill providing for vote on \$500,000 bonds for

reconstruction of entire street system of Lexington.

Louisville, Ky.—Commercial Club of Buechel will urge construction through Buechel of proposed Louisville - Lincoln Farm blvd.

Mansfield, La.—De Soto County will construct road to Sabine Parish line; \$70,000 certificates will be issued.—L. M. Cook, Chairman Finance Committee.

New Orleans, La.—Council has ordered bids advertised for paving City Park ave. with mineral rubber asphalt.

Shreveport, La.—Citizens have voted \$250,000 bonds for street paving and storm-sewer construction.

Chicopee, Mass.—Stevens-Duryea Company will construct brick track on which to test cars; cost \$350,000.

Biwabik, Minn.—County Commissioner Neil McInnis is favorable to \$14,000 appropriation for opening old Vermillion trail from this city to Duluth.

Duluth, Minn.—With view to protecting interests of city on lake front and preventing outside parties from grabbing up all dock frontage, Alderman Thomas Trevalion has introduced resolution in Council asking that City Engineer be requested to report on most feasible or suitable point at which to open street from easterly side of St. Croix ave. to shore of Lake Superior.

Duluth, Minn.—Board of Public Works is considering improvement of 4th st.—T. F. McGilvray, City Engineer.

Duluth, Minn.—Work will begin early in spring on proposed road from this city to the Jean Duluth farm.—C. P. Craig is interested.

St. Paul, Minn.—City will macadamize Snelling ave., Ohio, Baker and George sts.

St. Joseph, Mo.—Board of Public Works is considering paving of Angelique and Linn sts. with Hassam.

Springfield, Mo.—Paving of Grand ave. with brick is being considered.

Hastings, Neb.—Council will consider petition for paving of Bellevue ave.

Omaha, Neb.—City Engineer Craig will send to Council about thirty ordinances providing for paving and repaving streets and alleys in center of city.

Cape May Court House, N. J.—Bonds, \$37,000, have been sold for improvements to Holly Beach rd.

Orange, N. J.—Board of Aldermen is considering opening of boulevard from Orange Park to South Orange ave.—J. F. McDonough, Chairman South Orange Park Committee.

Buffalo, N. Y.—City did not award proposed \$371,966 street bond issue.

Buffalo, N. Y.—Board of Aldermen has ordered bids advertised for repaving William st.

Mineola, L. I., N. Y.—Nassau Supervisors have voted to have improved, with State aid, easterly end of North Hempstead turnpike; distance three miles.

Syracuse, N. Y.—Council has adopted ordinance for paving of Lincoln ave., also one for pavement on Montgomery st.

Utica, N. Y.—Division Engineer Guy Miller, State Highway Department, Waterbury, and County Engineer Schultze are examining State highways as regards proposed construction of State and county highways for 1910.

Hendersonville, N. C.—City will soon construct cement sidewalks; \$20,000 bonds are available.

Mohall, N. D.—Citizens will vote on \$10,000 improvement bonds.

Hickory, N. C.—City will construct 10,000 sq. yds. of granolithic sidewalks, wood block and other pavements and macadam; \$60,000 bonds are available.—Gilbert C. White, Durham, Engineer.

Jonesboro, N. C.—Jonesboro Township, Lee County, will vote Dec. 28 on \$10,000 bonds for road improvements.

Grand Forks, N. D.—Council has formed Paving District No. 15.—J. D. Taylor, Mayor.

Grand Forks, N. D.—Bids will be called in February for about 200,000 sq. yds. creosote, Blome bitulithic or Donnellite pavement; cost about \$400,000.—Ray E. Wickham, City Engineer.

Akron, O.—Council has decided to improve Valley st. by grading, curbing and paving.—D. W. Harter, Clerk.

Cleveland, O.—Council will consider ordinance authorizing \$6,000 expenditure for construction of roadway.

Hamilton, O.—Council has passed ordinance instructing City Civil Engineer to prepare plans for paving four streets with brick, sheet asphalt, macadam or creosote block.

Hamilton, O.—City has decided to improve East ave. by paving with sheet asphalt, vit. brick, bitulithic or bituminous macadam or creosoted block.—C. L. Holdener, Clerk, Council.

Poland, O.—Bids will be received Dec. 20, 7 p. m. for purchase of \$3,250 sidewalk and \$500 improvement bonds.—T. F. Collins, Mayor.

Youngstown, O.—Council has passed ordinances for sidewalks on four streets.

Ardmore, Okla.—City will pave about 10 miles of streets.—H. H. Sayre, City Engineer.

Checotah, Okla.—Council has decided to issue \$10,000 bonds for construction of concrete crossings to connect with sidewalks recently made; election on bond proposition will be held Dec. 14.

Medford, Ore.—City will lay about five miles of paving in spring.

Portland, Ore.—Street Committee is considering paving of 1st st. with hard surface paving; also Grand ave.; City Engineer has submitted plans for improvement of 10th st.

Barnesboro, Pa.—Council has passed ordinance for laying out and extending Hickory st.—Frank Barnes, Borough Clerk.

Erle, Pa.—City let no contract for curbing 21st st., from Pennsylvania to East ave.—Ben. F. Briggs, City Engineer.

Harrisburg, Pa.—Highway Commissioner Caldwell will draw specifications for keeping in repair 611,535 sq. yds. of asphalt paving; contract will be awarded early next spring.

Harrisburg, Pa.—Council has passed ordinances for paving Granite, Carnation, 2d and Disbrow sts.

Johnstown, Pa.—City will sell Dec. 31, noon, \$100,000 street improvement bonds.—C. H. Wehn, City Treasurer.

Pittsburgh, Pa.—City will widen and pave South 18th st.; \$100,000 bonds are available; surveys being made.—W. A. Magee, Mayor.

Pittsburg, Pa.—Council is considering ordinance appropriating \$15,000 to improve Baltimore st.; improvement of Hallock and Salisbury sts. is also being considered.

West York, Pa.—Borough Council will borrow \$2,500 to improve streets.

Pawtucket, R. I.—Paving of Central ave. in spring is being considered.

Bristol, Tenn.—City will expend \$25,000 in street improvements.

Dallas, Tex.—Commissioner Doran has recommended rejection of all bids received for paving of Cedar Springs ave.

El Paso, Tex.—Cost of paving portion S. Stanton st. has been estimated at \$31,779.

Granbury, Tex.—Commissioners Precinct No. 1 have voted \$25,000 bonds for good roads.

Richmond, Tex.—Road District No. 1, Fort Bend County, will vote Jan. 1 on \$150,000 bonds for road improvements.

Sherman, Tex.—Grayson County will vote Dec. 18 on \$250,000 bonds for road construction.

Alexandria, Va.—Council has appropriated \$3,000 for 20-ft. broken-stone roadway on Washington st.; Street Committee has

estimated cost of improving same street from Prince to Queen sts. at \$10,730 for vit. brick and \$7,990 for broken stone.

Big Stone Gap, Va.—Citizens have voted \$22,000 bonds for constructing streets and bridges; also \$4,000 for sewers; plans and specifications will be secured.—W. H. Horton, Mayor.

Norfolk, Va.—Granby st. will be repaved after Jan. 1; Industrial Commission is urging widening of sidewalk.

Suffolk, Va.—W. B. Ferguson & Co., Suffolk, Va., desire addresses of manufacturers of brick and granite blocks.

Ballard, Wash.—Salmon Bay Improvement Club is urging reviving of plan to improve 26th and 28th aves., N. W.

Centralia, Wash.—City has decided to open Warren st.

Puyallup, Wash.—Plans by City Engineer D. P. Wheeler for paving districts Nos. 16, 17 and 20 have been adopted; cost of paving Pioneer ave. will be \$44,710 for granitoid and \$42,338 for bitulithic; Birch st., \$17,275 for asphalt, \$17,982 for granitoid and \$16,852 for bitulithic, and Tacoma ave., \$6,709 for asphalt, \$6,929 for granitoid and \$6,457 for bitulithic.

Tacoma, Wash.—Metropolitan Park Board has been petitioned to improve boulevard connecting with Center st. pavement and extending to So. 64th st.

Green Bay, Wis.—Street improvement work will be resumed in 1910 by city, and, according to estimates prepared by City Engineer W. W. Reed, \$220,011 will be spent in that direction.

Montreal, Que., Can.—Roads Committee of the City Council has recommended \$14,000 expenditure to widen Rivard st.; \$10,000 is available for the macadamizing of St. Denis st.

Toronto, Ont., Can.—City Engineer Rust has recommended construction of asphalt pavement on Claremont st.; cost \$12,618.

Victoria, B. C.—City has decided to improve Linden ave. at cost of \$22,086; also Princess ave. and Fembroke st.

BIDS RECEIVED AND CONTRACTS AWARDED

Little Rock, Ark.—The following bids were received for street paving and curbing: I. P. Shelby, 4,000 sq. yds. creosoted blocks 3½-in. thick on 5-in. concrete foundation, \$2.50; 1,500 cu. yds. earth excavation, 45c.; setting 1,900 lin. ft. Wainwright reinforced concrete curb, 40c.; E. J. Wetterstrom, paving, \$2.50; excavating, 50c.; curbing, 45c.; Memphis Asphalt Company, 1½-in. binder and 1½-in. top asphalt, \$2.23; excavation, 50c.; curbing, 50c.—E. A. Kingsley, City Engineer.

San José, Cal.—The Ransome-Crummey Co., being the only bidder, was awarded the contract for improving the intersections of 4th, 5th and 6th sts., with Santa Clara st., at the following figures: Pavement, 26c. per sq. ft.; gutters and curbing, 12c. per sq. ft.; catch basins, \$45; drains, \$1 per ft. For the construction of artificial stone sidewalks on nine streets, D. Montoya bid 15½c. and D. Ferrant 15c. per sq. ft.; the bids were referred to the Streets, Lands and Squares Committee.

San Francisco, Cal.—The Harbor Board has awarded contract for paving streets near the mail dock to Flinn & Tracy at \$33,350, the lowest of four bids.

Jacksonville, Fla.—The Board of County Commissioners opened bids for certain proposed paving Duval rd., as follows: L. F. Drysdale, Grading, 22c., and paving, 26c. per sq. yd.; to clear right-of-way, \$39.85 per acre; grading, 21½c. per cu. yd.

Peninsula Engineering Co., by J. Y. Wilson, General Manager, grading, 25c. per cu. yd.; paving, 29½c.; clearing right-of-way, \$42.50 per acre; grading, 27½c. per cu. yd.

H. Lowe, clearing right-of-way, \$45 per acre; grading, 18c. per cu. yd.

The bids for paving are based upon the use of shell material.

North Chicago, Ill.—Following are bids opened Nov. 27 by Bureau of Yards and Docks, Navy Department, Washington, D. C., for roads and walks at the Naval Training Station: (a) System of macadam roads complete; (b) system of concrete walks complete; (c) totals for (a) and (b), bids contain certain modifications: Simpson Construction Co., 704 Washington st., Chicago, Ill., (b) \$26,000; Jas. Corse, 1200 Park ave., Racine, Wis., (a) \$87,325, (b) \$96,700, (c) \$138,112; Jas. Cape & Sons, 468 Water st., Racine, Wis., (a) \$54,060, (b) \$39,480, (c) \$90,540; T. H. Inglehart, The Rookery Bldg., Chicago, Ill., (c) \$154,067; Warren Bros. Co., 59 Temple Place, Boston, Mass., (a) \$82,500, with modifications, (b) \$26,500, (c) \$107,000 with modifications.

Elkhart, Ind.—Bids were opened Dec. 1 by city for paving Marion st. and following were received: Andrews Asphalt Paving Co., Hamilton, O., bid per sq. yd. for Trinidad sheet asphalt, \$1.96; combination concrete curb and gutter, per lin. ft., 44c.; concrete curb, 44c.; concrete gutter, 44c.; headers, 44c.; catch basins, \$45 each; sewer inlets, \$25 each.

Cain Company, Gary, bid for Metropolitan block, per sq. yd., \$2.06; combination concrete curb and gutter, per lin. ft., 48c.; concrete curb, 40c.; concrete gutter, 40c.; headers, 40c.; catch basins, \$45 each; sewer inlets, \$25 each.

This company also submitted bid of \$2.50 sq. yd. for street railway company's portion.

New Orleans, La.—Following bids have been received by Finance Committee and will be referred by Council to committee, thence to City Engineer for computation, tabulation and report back to committee: For repaving existing granite block of Calhoun, the Etta Construction Co., L. Patterson & Co., Vancroft & Ross, the Standard Paving Co., the Grasser Contracting Co., H. W. Bond, C. Hyland & Co., Joseph A. Craven & Co., and Thomas Egan. For paving 8th st. with asphalt, Barber Co. was the only bidder, as it was also on proposition to pave Joseph st. with the same material. For paving Octavia st. with granite, R. S. Blome & Co. and Thomas Egan. For paving St. Claude st. with granite, R. S. Blome & Co. For banqueting both sides of Calhoun st., Henry W. Bond and C. Hyland & Co.

Malden, Mass.—A contract for 20,000 paving blocks of Quincy granite was awarded to R. & S. J. Lombard at \$60 per 1,000.

St. Paul, Minn.—Contract for grading Snelling ave has been awarded by Board of Public Works to D. W. Moore for \$13,908; about 1¼ miles will be graded and about 47,000 cu. yds. removed.

Gulfport, Miss.—Gulfport Traction Co. has awarded contract to M. F. Scary, city, for street paving.

St. Joseph, Mo.—Following bids have been opened by Board Public Works for paving with brick a portion of Albemarle st.: U. G. Rinehart, \$1.35 per sq. yd., awarded contract; H. N. Rice, \$1.37, and C. W. Dillingham, \$1.67.

Newark, N. J.—Board of Freeholders of Essex County has recommended for award contract for constructing plank road bridge over Passaic River to Snare & Triest, of Jersey City, for \$338,000, and improvement work on Plank Road to Wm. Baker, of Jersey City, for \$263,000.

Red Bank, N. J.—Charles Burd, city, has been awarded contract by Borough Council to pave Front st.

Trenton, N. J.—United Paving & Construction Co. has submitted bid at \$6,700 for resurfacing portion of Chambers st.

Asheville, N. C.—Kenilworth Land Co. has awarded contract to B. J. Luther & Co., city, to construct boulevard one and a half miles long through Forest Hill and Kenilworth properties; work includes erection of bridge across ravine; cost \$10,000.

Ashtabula, O.—Board of Public Service has awarded contract for paving Lake st. subway with about 4,792 sq. yds. Medina block to Thos. Fitzgerald for \$21,218; bids were opened Oct. 21.

Toledo, O.—Broadway, between Knapp and Colburn sts., will be repaved both inside and outside car tracks with bitulithic paving, patented material, controlled by Warren Brothers. Contract has been let by Board of Public Service to Central Bitulithic Paving Company, with headquarters in Detroit and Manistee, Mich. Approximate price is \$68,268.40.

These contracts for street paving were also let: Foraker ave. to Garrigan Brothers, on Westrumite, for \$7,924.75; Fort st. to Garrigan Brothers, on vit. brick, at \$4,100.40; Avondale ave. to Garrigan Brothers, on Westrumite, at \$11,531; Pinewood ave. to Garrigan Brothers, on Westrumite, at \$10,567.10; Sandusky st. to Ohio Paving Co., on carbo via macadam, at \$3,316; Leonard to Ohio Paving Co. at \$5,249.21.

Chandler, Okla.—Contract for a county road, from the east to the west side of the county, was let to T. M. Steicher for \$135,000; the road will be 31 miles long, is to be completed within a year and work will be begun immediately; a good, high grade will be first established, then the road will be constructed of rock and oil; it will average from 10 to 14 ft. wide. It is not known yet whether convict labor will be used in its construction, although State laws provide for it.

Claremore, Okla.—Bids were opened Nov. 15 for construction of a brick pavement from plans of J. S. Worley Co., of Kansas City, Mo., and contract has been awarded to New State Paving & Construction Co., of Tulsa, at the following bid: 4-in. drain tile, 35c.; 606 ft. 8-in. sewer, in place, 55c.; 10-in. sewer, in place, 70c.; 400 ft. 15-in. sewer, in place, 90c.; catch basins, \$38 each; 5 manholes, \$30; 14 c.-in. inlets, \$18; 1,196 lin. ft. stone headers, 35c.; stone curb, 20c. per lin. ft.; 5,089 lin. ft. concrete curb, 45c.; comb. curb and gutter, per lin. ft., 62c.; 26,030 sq. yds. vit. brick pavement on 5-in. concrete foundation, including 10,610 cu.

New York, N. Y.—Bids were received as follows, Nov. 18, by the Board of Water Supply for Contract No. 59 for constructing 27.5 miles of highways, including clearing, grading, building of culverts, ditches, drains, guard rails and retaining walls around the Ashokan Reservoir in Ulster County, to replace the roads wiped out by the Ashokan reservoir, from (A) C. P. Bower Construction Co., Bulletin Bldg., Philadelphia, Pa., awarded contract; (B) The C. S. Lamble Co., the Wabash Bldg., Pittsburgh, Pa.; (C) American Pipe & Construction Co., 112 North Broad St., Philadelphia, Pa.; (D) Henry P. Burgard Co., Buffalo, N. Y.; (E) Jules Breuchaud Construction Co., 290 Broadway, New York; (F) Joseph B. Pennell & Co., Yonkers, N. Y.; (G) average bid:

	(A)	(B)	(C)	(D)	(E)	(F)	(G)
220 acres grubbing and clearing.....	\$30.00	\$100.00	\$100.00	\$100.00	\$300.00	\$250.00	\$146.67
230,000 cu. yds. earth excavation.....	.55	.52	.60	.65	.85	.75	.65
100,000 cu. yds. rock excavation.....	1.05	1.00	1.40	1.50	.85	1.45	1.21
1,000 cu. yds. dry paving.....	3.00	4.00	3.00	4.00	2.50	3.00	3.25
11,000 sq. yds. cobble gutters.....	.75	1.50	.90	1.00	.50	.30	.82 $\frac{1}{2}$
750 cu. yds. dry masonry.....	4.00	6.00	4.00	5.00	4.00	4.00	4.50
500 cu. yds. rubble masonry.....	6.75	7.00	5.50	7.00	6.50	6.50	6.62 $\frac{1}{2}$
5,000 cu. yds. concrete masonry.....	7.98	7.50	8.00	8.00	10.00	8.00	8.25
6,000 sq. ft. flagging.....	.25	.28	.30	.20	.25	.30	.26
12,700 lin. ft. 6-in. tile underdrain.....	.18	.30	.40	.30	.25	.30	.29
340,000 lbs. steel for reinforcing concrete.....	.05	.05	.06	.05	.05	.03 $\frac{1}{2}$	.05
85,000 lin. ft. guard rails.....	.25	.25	.25	.10	.25	.30	.23
250 cu. yds. broken stone and gravel.....	6.00	2.50	4.00	3.00	2.00	3.00	3.42
Totals.....	\$323,861	\$336,665	\$389,820	\$399,710	\$439,125	\$458,100	

Bond required, \$130,000. Time, 36 months.

yds. excavation, \$1.84; 26,030 sq. yds. pitch filler, 15c.; extra earth excavation, per cu. yd., 50c.; 270 cu. yds. concrete masonry, \$7.50; 200 cu. yds. excavation for culvert foundation, 50c.; 50 cu. yds. extra gravel, \$1.80; total, using pitch filler, \$58,355, to be completed in 3 months. Totals of other bids, using pitch filler: Davis Construction Co., Muskogee, \$62,014; Stuckey Construction Co., Muskogee, \$58,475; McGuire & Stanton, Coffeyville, Kan., \$60,034; G. A. Herman, Chickasha, \$66,036; Tulsa Engineering & Construction Co., Tulsa, \$69,916; Hippie & McSpadden, Vinita, \$58,565; Gilkeson & Levy, Muskogee, \$65,124.

Sapulpa, Okla.—Peter Bros. Paving Co., Chicago, Ill., has been awarded a contract for laying 11,900 sq. yds. asphalt 3 in. thick on 5-in. concrete foundation for \$1.85 per sq. yd.; additional price for earth excavation, 32c.; loose rock, 75c.; solid rock, \$1.25; also 3,700 lin. ft. concrete curb and gutter, 6-in. curb and 2-ft. gutter, 1:2:4 stone concrete curb, 8-in. exposure, for 60c. per lin. ft.—E. D. Kirkpatrick, City Engineer.

Tacoma, Wash.—P. E. McHugh was awarded a contract by the Commissioner of Public Works to grade 43d st. between Park and Pacific aves. and to lay sidewalks thereon for \$6,000. Bertelson & Son were awarded a contract to grade 49th st. from Water to Ferdinand at \$7,790. Other bids on district No. 719 were as follows: Barton & Caldwell, \$6,325; Bertelson & Sons, \$6,826; Coast Contracting Co., \$6,259; Puget Sound Cement Stone Block Co., \$6,302; Wright & Sweeney, \$6,322.

Tacoma, Wash.—Second set of bids for construction of Kapowsin-Electron County road was received and opened Nov. 26 by County Commissioners and contracts awarded to Bertelson & Son for \$10,800; former batch of bids was rejected, all being considered several thousand dollars too high; new road is approximately two miles long and runs between Kapowsin and Electron; part is graded work and part trestle. Following are the bids received: Burton & Caldwell, \$11,800; Joe Wells, \$14,882; E. M. Moore, \$18,800; W. C. Davis, \$12,893; Bertelson & Son, \$10,800.

Racine, Wis.—James Cape & Son, city, have been awarded contract of building roads and catch basins at the new Naval Training Academy at Lake Bluff, whole contract amounting to \$58,000.

Two Rivers, Wis.—Lowest bid opened Nov. 19 by Board of Public Works for paving with tar macadam portion of 16th and Washington sts. was submitted by Walter O. Bahr, Manitowoc, at \$8,404, for former and \$3,822 for latter.

SEWERAGE

Morrilton, Ark.—Sewerage Commissioners have had plans and specifications prepared for proposed sewerage system; estimated cost \$10,000.

Centerville, Cal.—City is considering plans for construction of sewers.

Los Gatos, Cal.—Installation of better sewer system is being considered.

Sacramento, Cal.—Etna Mills, Siskiyou County, will install sewer system.

San Francisco, Cal.—Board of City Supervisors has passed ordinances providing for construction of sewers as follows: Hunter's Point District, cost \$190,000; Section B of the North Point Sewer, \$96,000; Fulton st., \$65,000, and 31st and 32d aves., \$12,000.

San José, Cal.—Bids have been ordered advertised for construction of sewer in 14th st.

South Pasadena, Cal.—Citizens will vote on \$100,000 bonds to install modern sewer system with septic tanks and pipe lines and to improve streets.

Ansonia, Conn.—City is considering ex-

tension of present sewer system at cost of \$75,000; bids will be asked in early spring.—Vincent B. Clark, city Engineer.

Hartford, Conn.—City Engineer Department is preparing plans for construction of first section of proposed intercepting sewer.

St. Maries, Ida.—Sewer Committee has advertised for bids for construction of sewers in Improvement District No. 1.

Batavia, Ill.—Board of Local Improvements has adopted resolutions authorizing construction of sewers in various streets.

Chicago, Ill.—Elliptical-shaped sewer, 6 ft. high and 5 ft. wide, is planned by Sanitary District of Chicago on its north shore channel from Glencoe to Kenilworth, where it will be run in easterly direction to head of Willamette channel; cost about \$250,000.

Chicago Heights, Ill.—Board of Local Improvement has instructed City Engineer A. L. Fox to prepare plans and specifications for 10 miles of storm water sewers of 15 to 60 in. diam.; also 15 miles of sewers, 8 to 24 in. diam.

Farmington, Ill.—City Engineer Bates, Mammoth, has recommended that Council construct sanitary sewer system, to cover territory as shown in survey map of this city made by Chas. F. Sturdevant.

Lincoln, Ill.—Special Sewer Committee has recommended that proposed east side sewer system be built either on Dean or Hamilton sts.

Quincy, Ill.—Engineer W. S. Shields, Chicago, has submitted plans and specifications for proposed sewer as follows: Jefferson district, \$108,500; South Park district, \$31,000; Delaware district, \$5,600.

Michigan City, Ind.—Board of Public Works has passed a resolution directing City Engineer to prepare plans and specifications for construction of a district sewer, extending from Indiana State Prison and connecting with main sewer in 4th st.

Toledo, Ind.—Council has selected Engineer J. W. Alvord, 140 Dearborn st., Chicago, Engineer Whipple, of New York, and Engineer H. P. Eddy, of Boston, Mass., to make report for sewerage system.

Grinnell, Ia.—Council has voted to construct storm sewers on several streets.

Wichita, Kan.—City Commissioners have decided to issue \$3,335.60 bonds for construction of sanitary sewer No. 14.—Wm. Sence, City Clerk.

Shreveport, La.—Citizens have voted \$250,000 bonds for storm sewer construction and street paving.

Greenfield, Mass.—William S. Johnson, Boston, has consulted Committee representing town on taking sewage out of Green River and disposing of it otherwise than by allowing sewer to discharge in the river and polluting water.

Salem, Mass.—Salem Board of Aldermen has appropriated \$30,000 for sewers in Juniper Point district.

Columbia, Mo.—Plans and specifications are being prepared for construction of about 50,000 ft. of district sewers.—John S. Bicknell, City Clerk.

Vandallia, Mo.—Citizens have voted to install sewer system.

Missoula, Mont.—Council has adopted plans for entirely new sanitary sewer system; cost \$200,000; plans by C. W. Swearinger Co., of Great Falls.

Grand Island, Neb.—All bids opened for extending sewers in Sewer District 15 have been rejected.—H. E. Clifford, City Clerk.

Madison, Neb.—Plans will be prepared by W. M. Palmer & Co., Engineers, Kansas City, Mo., for sewer system.

Hackensack, N. J.—Sewage disposal for the Overpeck Valley section of Bergen County, which includes the municipalities of Englewood, Norwood, Fort Lee, Palisades Park, Mosemere, Ridgefield and Fairview, is being agitated; plan is for construction of disposal plant so located

that it would be available for all these places; type of plant suggested is that of filtration, with purified discharge into one of streams leading to Hackensack.

Haddonfield, N. J.—House owners have been notified by Borough Health Inspector to make connections with sewer within thirty days; nearly 200 houses in borough are not yet connected with sewers.

Newark, N. J.—Board of Street and Water Commissioners is considering construction of sewers in Bergen st. and Lyons ave.—Wm. E. Greathead, Clerk.

Paterson, N. J.—Passaic County Freeholders will ask State Road Commissioner Gilkyson for aid in plan to construct \$40,000 drain in Main st.

Summit, N. J.—City did not let contract for construction of 1,940 lin. ft. of 8 and 10-in. vit. pipe sewer in Hill Crest and Summit aves.—John S. Stiger, City Engineer.

Wood-Lynne, N. J.—Citizens will vote Dec. 28 on construction of sewage disposal plant at cost of \$6,000.—F. J. Mugglewirth, Clerk.

Buffalo, N. Y.—City has awarded \$115,000 sewer bonds to N. W. Halsey & Co. at \$100.76.

Syracuse, N. Y.—Council has decided to construct an 18-in. pipe sewer in Marquette ave. and an 8-in. pipe sewer in North Clinton st.

Utica, N. Y.—City Engineer O'Brien has prepared plans for vit. pipe sewers in Erie st.

Mandan, N. D.—City Commissioners have established Sewer Improvement District No. 1.

Bellefontaine, O.—Engineer will be employed to prepare plans and specifications for sewer system and sewage disposal plant.—Clair A. Inskip, City Engineer.

Canton, O.—City has sold \$32,000 sewer bonds to Seasongood and Mayer, Cincinnati.

Elyria, O.—Council has recommended that City Engineer prepare estimates of cost of constructing sanitary sewers on all streets east of Middle ave.

Mansfield, O.—Council has adopted plans, specifications and estimates prepared by the City Engineer for construction of a sewer in Helen ave.

Springfield, O.—City will construct Warner st. sewer this winter; cost of this improvement \$16,000.

Ardmore, Okla.—City will award contract about Jan. 1 for construction of proposed sewer extension and water works.—H. H. Sayre, City Engineer.

Portland, Ore.—Plans have been prepared for a chain of sewers for the Powell st. District; cost about \$18,413.

Altoona, Pa.—Residents of Eighth and other East Side districts are urging need of sewers.

Aberdeen, S. D.—Prof. A. Marston, Iowa Agricultural College, Ames, Ia., Consulting Engineer, has recommended addition of filter bed of adequate size to present septic tank in sewer system.

Huron, S. D.—Council has adopted resolution to construct an 8-in. lateral sewer in the 41st sewer district.

Morristown, Tenn.—Citizens will vote Jan. 15 on bonds for sewer construction.

Brownsville, Tex.—Brownsville Sewerage Co. has been incorporated with \$25,300 capital stock by A. A. Browne, E. A. McGary, C. P. Barreda and Louis Crixell.

Dallas, Tex.—Board of Municipal Commissioners has ordered extension of 6-in. sanitary sewer on Beckley st.

Houston, Tex.—Engineer Dormant has completed plans for construction of sewers in Baker and Fair Ground additions.

Lubbock, Tex.—City has selected E. Leon Dalton, Dallas, as engineer for proposed sanitary sewer and water works extension; estimated cost \$60,000.

Provo, Utah.—Council is considering establishment of Sewer District 12; cost \$75,000.

Salt Lake City, Utah.—City has created Sewer District No. 12; cost about \$75,000.

Big Stone Gap, Va.—Citizens have voted \$4,000 bonds for sewers; plans will be received.—W. H. Horton, Mayor.

Norfolk, Va.—Extension of city's sewerage system to Hampton pl. is being considered by Sewerage Committee.

Olympia, Wash.—City will soon let contracts for laying number of trunk sewers.

Stanley, Wis.—Council has decided to construct 10-in. sewer in Helgeson st.

New Westminster, B. C., Can.—City Engineer Blackburn has recommended construction of new storm sewers at estimated cost of \$10,000.

Toronto, Ont., Can.—Bids will soon be received by city for the following materials for the Sewage Disposal Works: 16 tons c. i. manhole covers; sludge valves, penstocks; 150 tons c. i. pipe; 26 tons special castings; four 24-in. centrifugal pumps; two 18-in. centrifugal pumps; two 8-in. centrifugal pumps; two 175-h.p. motors; two 125-h.p. motors; two 100-h.p. motors; two 200-h.p. gas engines; garbage destructor; sewage screens; centrifugal dryers.—C. H. Rust, City Engineer.

BIDS RECEIVED AND CONTRACTS AWARDED

Pratt City, Ala.—City has awarded contract to P. H. O'Brien & Co., Birmingham, at \$23,317.73 to construct sanitary sewers.—Wheelock Engineering Co., 711 Farley Bldg., Birmingham, Engineer.

Fitchburg, Cal.—Piedmont Paving Co. has secured contract for constructing sewer system, bids opened Nov. 9.

Holly, Col.—Davis, Waugh & Brail, of Joplin, Mo., have secured contract for constructing sewer system for \$18,500.

Alton, Ill.—Board of Local Improvement has awarded contract for 10,000 ft. of sewer in State and Elm sts. to Chas. Degenhardt, for \$18,789.

Sycamore, Ill.—Contract for about 6,655 ft. 8, 10 and 12-in. sewers, etc., bids opened Nov. 24, has been awarded to Geo. A. Peters, city, for \$5,038.—W. M. Hay, Engineer.

Evansville, Ind.—The award of the Blackford ave. sewer was given to the Newman Construction Co. by the Board of Works at a cost of \$10,000; it must be finished within 90 days. The company was also given the contract for a sewer between Blackford and Powell aves., from Kentucky ave. to McCormick ave. Two sewer contracts in alleys were let to J. F. Hughes.

Louisville, Ky.—Bids were opened by the Commissioners of Sewerage Nov. 26 for construction of Jefferson st. sewer, Contract 57, and the contract has been awarded to E. A. Barker & Son, city, cost about \$6,000.—J. F. Breed, city, Chief Engineer; Harrison P. Eddy, 14 Beacon st., Boston, Mass., Consulting Engineer.

Jersey City, N. J.—Street and Water Board has awarded to the O'Reilly Co. contract for sewer in Lake st. at 83 per cent of standard cost.—G. T. Bouton, Clerk.

Morristown, N. J.—Bids for finishing sewer work has been opened by Board of Sewerage, Miller Bldg.

Proposal No. 1—To clean certain sewers already laid, of sand and mud, the following bids were received: W. H. Steward, \$2,372.40; Clarke & Co., \$1,775; Healey Sewer, Machine & Construction Co., \$1,050.

Proposal No. 2—To repair leaky manholes and siphon chambers: Clarke & Co., \$350.37.

Proposal No. 3—To repair and replace streets in their former condition around manholes and filling along outfall sewer: Clarke & Co., \$4,552. This bid was not accepted by the Board.

Proposal No. 4—To relay sewers out of grade: The manhole on Speedwell ave. at Cutler st., Clarke & Co., \$46. Relay sewers on Center st., Clarke & Co., 60c. per ft. Relaying sewers on Speedwell ave., Clarke & Co., \$3.82 per ft. This price includes the removing or supporting of the trolley tracks while the work is progressing.

Proposal No. 5—To install buzzer for ejector chamber—no bids were received.

Clarke & Co.'s bid on Proposal No. 3 being, in the opinion of the Board, excessive, it was rejected. No bids were received for doing the whole work.

Healey Sewer, Machine & Construction Co. being the lowest bidder received the contract for Proposal No. 2. In all other cases there being only one bid this was accepted.

Roselle Park, N. J.—Following are bids opened Nov. 19 by Council for constructing two sections of sewers—(a) first section, (b) second section: Harrison Construction Co., Newark, (a) \$30,651, (b) \$20,507; Jabsen-Hooker Co., New York, N. Y., (a) \$31,551, (b) \$22,149; D'Amato & Stafenell, Newark, (a) \$27,210, (b) \$18,272; B. F. Sweeten & Son, Camden, (a) \$34,704, (b) \$22,671; Martin Miller, Seneca Falls, (a) \$24,667, (b) \$15,758; Mauriello-Fusco Co., Montclair, (a) \$29,554, (b) \$19,794; John McNabb, Bound Brook, (a) \$28,557, (b) \$17,134; E. M. Mullen, Bayonne, (b) \$20,775.

West Hoboken, N. J.—Contractors Nolan and Hornung were awarded contract Dec. 1 for construction of sewer in Union st.

Schenectady, N. Y.—Contract for construction of catch basin at Rugby rd. and Parkwood blvd., including 50 ft. of sewer pipe, has been awarded to Thomas R. Crane by Board of Contract and Supply.

Utica, N. Y.—Bids for construction of 24-in. vit. pipe sewer in Erie st. have been opened by Board of Contract and Supply. Bids were as follows: Rocco Perretta, \$1,593.30; Heveren & Co., \$2,211.35. Contract was awarded to Mr. Perretta, low bidder.

Portsmouth, O.—Board of Public Service has let contract to J. A. Grimes, at \$5,152, for extension of 18th st. sewer.

Narragansett Pier, R. I.—Sewer Committee has let contract to John Bristow, city, for construction of sewers and disposal plant.—T. G. Hazard, Jr., Chairman.

Dallas, Tex.—Bids on building of storm sewer on Cedar Springs st. have been opened and referred to Mr. Doran. Bids are from F. H. Lancashire and C. W. Olcott; cost about \$15,000. Prices are quoted

per piece, foot or yard and are given in total. The price on the total number of each item required is given herewith.

F. H. Lancashire—51-in. rein. concrete pipe, \$1,574.40; 51-in. plain concrete pipe, \$888; same 40-in., \$2,679.33; same 36-in., \$2,226.33; same 33-in., \$2,172.30; 30-in., \$3,028; 33-in. vit. pipe, \$3,212.54; 30-in. vit. pipe, \$4,738.82; 27-in. vit. pipe, \$1,868.76; 22-in. vit. pipe, \$41.50; 20-in. vit. pipe, \$273; 18-in. vit. pipe, \$1,664.50; 15-in. vit. pipe, \$572.40; 12-in. vit. pipe, \$483; 36-in. vit. Y's, \$55; 33-in. vit. Y's, \$70; 30-in. \$72; 27-in. \$72; 22-in. \$4; 20-in. \$20; 18-in. \$39; 15-in. \$12; standard inlets, \$1,975; concrete manholes, \$400; brick manholes, \$450; rock excavation, \$1,900; extra concrete excavation, \$8 per cu. yd.; concrete block, 51-in. sewer, \$2,187; same 40-in. sewer, \$3,946.30; same 36-in., \$2,388.40; same 33-in., \$2,209.20; 30-in., \$3,633.60; 27-in., \$1,575.20.

C. W. Olcott—On same items in order named: \$1,918.80, \$936, \$2,544.32, \$2,132.50, \$2,117.14, \$3,285.38, \$3,040.85, \$4,420.20, \$1,832.96, \$40, \$242.72, \$1,930.82, \$527.88, \$523.25, \$55, \$70, \$72, \$75.15, \$4.85, \$21, \$42.90, \$12.90, \$1,777.50, \$225, \$250, \$2,000, \$7, \$2,430, \$4,154, \$2,345.75, \$2,301.25, \$3,633.60, \$1,611.

Fort Worth, Tex.—City has awarded contract to San Antonio Company at \$25,199.37 for construction of 40,000 ft. of sewerage for Glenwood system.

WATER SUPPLY

Guntersville, Ala.—This town and Wyeth City have consolidated and will issue \$20,000 water and school house bonds.

Marshall, Ala.—Improvement of water works system is being considered; cost \$35,000.

Conway, Ark.—City will expend \$50,000 to \$75,000 on water works; Engineer and Architect not yet selected.—Address G. W. A. Wilson.

Fort Smith, Ark.—City will ask for bids at early date for 225 ft. of 24-in. and 6,000 ft. of 20-in. water mains and necessary specials; bids will be taken separately or altogether for pipe and specials and work of laying.—W. J. Johnston, Mayor.

Fresno, Cal.—Articles of incorporation are to be filed by Coalanga Water and Electric Company, with capital of \$2,000,000, to supply water and power to Coalanga and the oil fields; Directors are W. C. Kerckhoff, A. C. Batch, K. Cohn and A. G. Weston.

Porterville, Cal.—City is considering laying of several thousand feet of new mains.

San Francisco, Cal.—Finance Committee of Board of Supervisors at request of Board of Public Works has prepared resolution setting aside \$5,000 with which to continue work of making survey of Tuolumne water shed as preliminary step to building the municipal water plant.

San Francisco, Cal.—Spring Valley Water Company, which owns and controls water supply of San Francisco, has submitted offer to Board of Supervisors to sell entire system to the city for \$35,000,000.

San Francisco, Cal.—Mission Promotion Association has presented petition to Board of Public Works for comprehensive plan of fire protection for southeast portion of city.

San Francisco, Cal.—City has purchased County Line Water Company's plant; \$5,000 will be spent for immediate improvements.

Santa Cruz, Cal.—Advisory Committee has recommended election on \$250,000 bonds; following water improvements are desired: new and shorter pipe line to Laguna Dam; acquisition of additional water supply, preferably the East Lidel; new distributing reservoir on Lareaga Heights with storage capacity of not less than 30,000,000 gallons; duplicate pipe line connecting reservoirs and city water mains; also employment of expert hydraulic engineers to examine and report on proposed improvements.

Manitou, Col.—Town Council is considering construction of reservoir on the slope of Pike's Peak, to supply city with water.

Rocky Ford, Col.—City is considering installation of complete water supply system.

Wilmington, Del.—City has sold \$200,000 water works bonds to N. W. Harris at par.

Washington, D. C.—An American consular officer has reported that Mayor of city in eastern Europe has written that system of water works and drainage will be installed in that city during coming year; plans now being in the hands of Engineer, who will be prepared to report by Jan. 1.—Address No. 4164, Bureau of Manufactures.

Lakeland, Fla.—Citizens have voted \$34,000 bonds for improvement of water works and extension of mains.—John S. Edwards, Mayor.

Asotin, Ida.—Citizens will vote on \$35,000 of bonds for water system.

Peoria, Ill.—City is considering laying of water mains on various streets.

Stonington, Ill.—Town will install duplex pumps for fire pressure purposes.

Woodstock, Ill.—Citizens have voted \$8,000 for water works and electric light improvements.

Creston, Ia.—Citizens will vote on \$35,000 bonds for water works system.

Oakley, Kan.—Plans are being prepared by Burns & McDonnell, Scarratt Bldg., Kansas City, Mo., for system of water works and electric lights; cost \$50,000.

Maysville, Ky.—Improvement will be made on reservoir floors and percolation filter system be installed in river; also a meter system will be adopted after clear water supply is perfected.—A. Schaeffer, Superintendent, Water Works.

Douglas, Mass.—Town has sold \$40,000 water bonds to Adams & Co. at \$104.53.

Fitchburg, Mass.—Town has voted \$14,000 for high water service.

Hopkinton, Mass.—Town is considering equipping of pumping station with electric motors.

Quincy, Mass.—Town will expend \$2,000 for water extension.

Taunton, Mass.—Proposition that water supply of city be extended into town of Dighton is being considered; Council's plan is to extend mains to works of the Mount Hope Finishing Co. in Dighton, and to allow the latter to sell water to such persons as they wish.

Hancock, Mich.—City will construct concrete circular reservoir.

Pontiac, Mich.—Improvement of water works system is being considered; work will include construction of a reinforced concrete reservoir of from one to two million gallons capacity, and laying of the water main extension; cost \$82,000.—W. J. Fisher, Engineer; H. G. Monroe, City Clerk.

Duluth, Minn.—Council has called election, Feb. 1, on \$200,000 water and light bonds.

Minneapolis, Minn.—Water Department will at once purchase 1910 supplies, including 2,500 tons of c. i. pipe.—W. R. Young, Registrar.

Batesville, Miss.—City is considering plan to construct water works system; \$16,500 bonds will be issued.

Hermann, Mo.—Citizens will vote on \$20,000 water works bonds.

Conrad, Mont.—Plans will be prepared by C. T. Sacker and C. D. Flaherty, Engineers, Livingston, for laying out water works and electric light plant.

West Point, Neb.—Citizens are considering proposed reorganization of water works system.

Cape May Point, N. J.—Property owners will petition for \$10,000 bond issue to purchase and enlarge present water works.

Dover, N. J.—After having investigated nearly every available source of supply, and gathered data covering every phase of question, Special Committee appointed to consider municipal water supply for Wharton has recommended that Borough purchase present supply from Robert F. Oram.

Paterson, N. J.—State Water Supply Commission has refused the application of city for permission to construct reservoir near Midvale for purpose of supplying the city with water from Wanaqua watershed.

Albany, N. Y.—Bids will be received Dec. 15, 11 a. m., for \$200,000 water improvement bonds.—H. N. Fuller, Comptroller.

Black River, N. Y.—Board of Water Commissioners has been authorized to construct new water works and will need supplies to be delivered during coming summer, as follows: 9,000 ft. 4-in., 6,000 ft. 6-in., 5,000 ft. 10-in., c. 1. pipe; 28 hydrants; nine gates and gate boxes; 400-gal. pump; 25-h.p. gasoline motor; standpipe, 175,000 gal.; covering for 200 ft. of 6-in. pipe under bridge.

Brooklyn, N. Y.—Residents of Bay Ridge have petitioned for better water supply.

New York, N. Y.—Board of Water Supply will open bids in two weeks for construction of Grassy Sprain and Platt ave. siphon and Ardsley aqueduct; aqueduct will be 24,000 ft. long; contract also includes about 138 ft. of aqueduct of special design.—J. A. Bensel, President Board of Water Supply.

Wedsport, N. Y.—Village Board will arrange means of fire protection for business section of this village during coming winter and spring; large part of Erie Canal will be inclosed by dams and sufficient quantity of water kept therein.

White Plains, N. Y.—Board of Trustees has been asked by Water Board for \$7,800 for erection of steel tower, \$2,453 for water mains, \$80 for gates, \$560 for foundation, \$567 for engineers and \$40 for advertising.

White Plains, N. Y.—Water bonds, \$112,000, will be sold about Dec. 15.

Youngstown, N. Y.—Contract will be let in spring for proposed water works; cost \$23,000.—J. F. Witmer, Chaplin Blk., Buffalo, Engineer.

Bedford, O.—Bedford Board of Trade is urging installation of water works and sewer system.

Cleveland, O.—Water Department will consider extension of West Side water tunnel; Superintendent Burns is in favor of a

\$1,100,000 bond issue for this improvement and for equipping old Division pumping station.

Niles, O.—City will sell \$1,500 bonds Dec. 30, 2 p. m., for enlarging and extending water mains.—B. L. Hogan, City Auditor.

Clinton, Okla.—Council has advertised for bids on construction of a complete water filtering system for the city in accordance with plans and specifications drawn by City Engineer; capacity for the proposed system will be 100,000 gallons daily.

Cottage Grove, Ore.—City has decided to install water system.—W. J. Roberts, Medford, Consulting Engineer.

Freewater, Ore.—Citizens will vote on \$16,000 bonds for water works.

Hood River, Ore.—Council has passed ordinance for \$90,000 bond issue to be used in construction of municipal water plant, as authorized at special election.

Pennsburg, Pa.—Boroughs of Pennsburg and Red Hill are negotiating for joint water plant.

Tarentum, Pa.—Establishment of municipal water works is being considered.

Florence, S. C.—Citizens will vote on \$30,000 water works bonds.

Fort Moultrie, S. C.—Bids will be received Dec. 9, 7 p. m., for constructing 7 reinforced concrete cisterns.—Address Constructing Quartermaster.

Huron, S. D.—Engineer L. P. Wolff, St. Paul, has estimated cost of installing complete water works system as follows: pump house, \$4,800; pumping plant, \$8,000; reservoir, \$10,000; water tower, \$12,000; distribution pipe system, \$35,742; iron removal plant, \$15,000; contingencies, \$8,554; total \$94,096.

Centerville, Tenn.—City is considering installation of a water works and electric plant; cost between \$30,000 and \$40,000.—J. B. Walker, Mayor.

Knoxville, Tenn.—Knoxville Water Commission will engage a Hydraulic Engineer as Manager of water plant.

Atlanta, Tex.—City has invited bids for furnishing pumps, gas engine, etc., and construction of water works system.—Hugh Carney, City Secretary.

Bay City, Tex.—City will expend \$2,000 on extension of water system; capacity 500,000 gallons.—John Sutherland, Mayor.

Dallas, Tex.—Plans for new pumping station on White Rock reservoir are nearly completed.—J. M. Preston, City Engineer.

Denison, Tex.—City will extend water mains to all parts of city not now served and increase number of fire hydrants.

Fort Worth, Tex.—Plans for new steel dam which city will construct in Trinity to furnish secondary water supply are being prepared by Chicago Bridge Company.

Lubbock, Tex.—City has selected E. Leon Dalton, Dallas, as Engineer for proposed water works and sanitary sewer extension; estimated cost \$60,000.

Marshall, Tex.—City will expend about \$18,000 on water works improvements; daily capacity 2,000,000 gallons; will install about 800 meters.—W. P. Coleman, Engineer.

Thorndale, Tex.—Thorndale Water Company will build pumping station; J. A. Lehman is interested.

Kanab, Utah.—Citizens will rebuild big dam lately washed out.—J. C. Spencer and E. D. Worley are interested.

Park City, Utah.—Bids will be received about Dec. 10 by Water Commission.—Chas. P. Brooks, 228 Dooly Blk., Salt Lake City, Engineer; H. W. Deighton, Chairman.

Richfield, Utah.—Koosharem, situated in Grass Valley, 30 miles from railroad, will install system of water works; several springs within easy reach are available.

North Yakima, Wash.—Purchase for \$31,000 of water works which supply North Yakima with water is to be submitted to vote of the people; plant is owned by Northwest Light & Water Company.

North Yakima, Wash.—Citizens will vote on purchase of water system of Northwest Light and Water Company.

Pomeroy, Wash.—Improvement of water system is being considered; cost of replacing wood pipe with steel pipe is estimated at \$15,865.85.

Spokane, Wash.—City has awarded \$50,000 water bonds to Harris Trust and Savings Bank.

Tacoma, Wash.—Council has adopted resolution providing for construction of certain mains in district 554.

Kimball, W. Va.—L. Kaufman, Northfork, will begin at once erection of power house and other buildings necessary for construction of proposed water works and electric light plant; estimated cost, exclusive of site, \$100,000.

New London, Wis.—Council is considering extension of water mains in Fourth Ward.

Smith's Falls, Ont., Can.—Ratepayers will vote on by-laws to provide \$16,000 for water works plant.

Vancouver, B. C., Can.—City will expend \$79,380 for hydrants, water mains, etc.

BIDS RECEIVED AND CONTRACTS AWARDED

New London, Conn.—Standard Cast-Iron Pipe & Foundry Co., Bristol, Pa., has secured contract for 767 tons 24-in. c.-i. pipe at \$24.60 per ton, and 12,060 lbs. specials at 2.6c. per lb.; total cost \$19,181.76. Other bids were \$26.60 and \$26 for the pipe, and 2.6c. and 2.5c. for specials; totals, \$20,715.76 and \$20,243.50.—W. H. Richards, Engineer and Superintendent Water and Sewer Department.

Key West, Fla.—The contract for constructing a concrete cistern at the naval station with a capacity of 1,500,000 gallons, has been awarded to Bryan & Co., of Jacksonville, their bid of \$19,950 being low.

Chicago, Ill.—Seven contracts have been awarded to Malachy Murphy by Board of Local Improvements for laying water pipe.—John J. Hanberg, Commissioner.

Grand Rapids, Mich.—Bids were opened by Board of Public Works Nov. 18 for furnishing and erecting two water tube boilers or two internally fired boilers, with Morison corrugated furnaces, having capacity of 350 to 375 h.p. each, at the Combination Pumping and Lighting Station, and contract has been awarded to Ar buckle-Ryan Co., of Toledo, O.—W. M. Gormley, President.

St. Paul, Minn.—Bids were opened Nov. 22 by Board of Water Commissioners for furnishing and delivering f.o.b. cars St. Paul about 60,000 lin. ft. 6-in., 15,000 ft. 8-in., 12,000 ft. 12-in., 9,000 ft. 16-in. c.-i. water pipe, and the contract has been awarded to the American Water Pipe Co., of Birmingham, Ala., for \$71,541.

Columbia, Miss.—Bids were opened Nov. 18 for constructing extension of the water works, from plans of E. Blanchard, to consist of furnishing and laying approximately 4,940 ft. 6 and 4-in. c.-i. pipe, with 1-ton special castings, 4 valves and 8 hydrants; contract for material has been awarded to W. V. O'Rourke, of New Orleans, La., and for laying pipes to Xavier A. Kramer, of Magnolia.

Vicksburg, Miss.—Vicksburg Water Works Co. has awarded contract to A. M. Lockett & Co., New Orleans, La., for 6,000,000-gal. pumping engine to be installed in water plant.

Ft. Hancock, N. J.—Following are bids received Nov. 19 by Lieut. C. J. Goodier, Constructing Quartermaster, for extension of the water supply system:

Pump house and stack—John Milnes Co., Port Richmond, N. Y., \$31,900, without trestle; Robt. J. Walsh, Highlands, N. J., \$37,000; Daniel J. Ryan, Brooklyn, N. Y., \$28,300; Weber Chimney Co., Chicago, Ill., \$2,475, stack only; McHarg-Barton Co., New York, N. Y., \$36,000; Norcross & Edmunds, Philadelphia, Pa., \$50,100 for trestle, machinery, 3 water-tube boilers, plumbing and stack; New Jersey Foundry & Machine Co., New York, N. Y., \$36,770; Edward Fay & Son, Philadelphia, Pa., \$29,890; G. & W. Mfg. Co., New York, N. Y., \$47,900.

Boilers for power house—(a) 2 water-tube boilers, (b) 3 water-tube boilers, (c) 3 tubular boilers, (d) 4 tubular boilers—Daniel J. Ryan, Brooklyn, N. Y., Incorporated in alternate proposal for construction, etc.; A. D. Granger & Co., New York, N. Y., (a) \$12,418, (b) \$14,843, (c) \$13,693, (d) \$15,935; McHarg-Barton Co., New York, N. Y., (a) \$13,000, (b) \$17,000; Norcross & Edmunds, Philadelphia, Pa., (b) included in proposal for construction; E. Keeler Co., Williamsport, Pa., (a) \$7,500, (b) \$9,800, (c) \$8,500, (d) \$10,500; New Jersey Foundry & Machine Co., New York, N. Y., (b) included in alternate proposal; G. & W. Mfg. Co., New York, N. Y., (a) \$18,990, (b) \$21,900, (c) \$17,100, (d) \$19,300, including air compressor.

Air compressor for power plant—Daniel J. Ryan, Brooklyn, N. Y., incorporated in alternate proposal for construction, etc.; Ingersoll-Rand Co., New York, N. Y., \$3,676 and \$3,322; A. D. Granger & Co., New York, N. Y., \$4,447 and \$5,347; McHarg-Barton Co., New York, N. Y., \$4,500; Norcross & Edmunds, Philadelphia, Pa., included in general proposal for construction, etc.; New Jersey Foundry & Machine Co., New York, N. Y., included in alternate proposal; Edward Fay & Son, Philadelphia, Pa., \$3,600; G. & W. Mfg. Co., New York, N. Y., \$4,787; Stand pipe, 300,000 gal.—(a) concrete, (b) steel—Wm. Tunney, Joliet, Ill., (a) \$5,075; Daniel J. Ryan, Brooklyn, N. Y., (a) \$11,000, (b) \$4,400; Tippett & Wood, Phillipsburg, N. J., (b) \$4,300; Filbert Paving & Construction Co., Philadelphia, Pa., (a) \$7,197; McHarg-Barton Co., New York, N. Y., (a) \$7,500, (b) \$5,500; Hennebique Construction Co., New York, N. Y., (a) \$9,600; Norcross & Edmunds, Philadelphia, Pa., (a) \$13,600, (b) \$12,500; New Jersey Foundry & Machine Co., New York, (b) \$4,787;

Edw. Fay & Co., Philadelphia, Pa., (a) \$8,500, (b) \$4,500; G. & W. Mfg. Co., New York, N. Y., (a) \$7,290, (b) \$5,943.

Extension of water mains—Wm. Tunney, Joliet, Ill., \$7,734; McHarg-Barton Co., New York, N. Y., \$9,000; Norcross & Edmunds, Philadelphia, Pa., two bids, \$13,600, including concrete stand pipe, and \$12,500, including steel stand pipe; New Jersey Foundry & Machine Co., New York, N. Y., \$9,987; Edw. Fay & Son, Philadelphia, Pa., \$11,330; G. & W. Mfg. Co., New York, N. Y., \$8,900; Robt. J. Walsh, Highlands, N. J., \$8,350.

Alternate proposals, for construction, machinery, etc.—Daniel J. Ryan, Brooklyn, N. Y.—For construction of building as per plans and specifications, plumbing, 2 water-tube boilers, compressor and steel stand pipe, \$60,800; for same, using horizontal tubular boilers, \$58,800; plumbing, concrete or steel stand pipe not desired independently. McHarg-Barton Co., New York, N. Y.—For construction of building, per plans and specifications, plumbing, 3 water-tube boilers, compressor, concrete stand pipe and extension of water mains, \$67,000. G. & W. Mfg. Co., New York, N. Y.—Will accept award of contract for any of following items: Construction of pump house, stack and trestle; alternate for building to line A.A., with stack and trestle; boilers combined with compressor, any number of boilers, and concrete stand pipe; on any other items of contract will not be willing to accept separate award; if awarded entire contract a deduction of \$1,500 will be made from total lump sum. New Jersey Foundry & Machine Co., New York, N. Y.—Power plant, complete, installing 3 Babcock & Wilcox water-tube boilers, \$20,787; for 2 water-tube boilers deduct \$3,860; for 4 Ames tubular boilers deduct \$3,808; for 3 Ames tubular boilers deduct \$5,300; for 3 Heine or Standard water-tube boilers deduct \$3,300; for 2 Heine, Root or Standard boilers, water-tube, deduct \$5,500; for Marion incline heater and filter, 1,200 h.p., add \$500; for Marion incline heater and filter, 500 h.p., deduct nothing.

Jersey City, N. J.—Bids were opened Nov. 22 by Board Street & Water Commissioners for furnishing 200 lengths 6-in., 3,000 lengths 8-in., 500 lengths 12-in. and 200 lengths 20-in. c.-i. water pipe, and lowest bid received was submitted by the U. S. Cast-Iron Pipe & Foundry Co. at \$24.30 per ton.

Jersey City, N. J.—The Street and Water Board has awarded pipe contract for the new year to the United States Cast Iron Pipe and Foundry Co.

Little Falls, N. Y.—Only bid received and opened by Board of Public Works Nov. 19 for constructing water main to plant of Synite Rock Co., in eastern part of city, was submitted by the Cooper-Snell Co. for \$5,250; Engineer's estimate about \$2,800.

New York, N. Y.—Following are totals of bids opened by Board of Water Supply, 299 Broadway, Nov. 24, for Contract 60, which calls for construction of the Hurley dikes of the Ashokan reservoir, known as Glenford, Woodstock and West Hurley dikes at Erown's Station; MacArthur Bros. Co., 11 Pine st., New York City, \$971,275, awarded contract; David Peoples, 1,000 Betz Bldg., Philadelphia, Pa., \$1,029,240; Jules Breuhaud Construction Co., 290 Broadway, New York City, \$1,055,125; Elmore & Hamilton Contracting Co., Tweedle Bldg., Albany, \$1,074,355; P. J. Carlin Construction Co., 16 E. 23d st., New York City, \$1,167,000.

Following are totals of bids opened by Board Nov. 24 for Contract 10, which calls for construction of headworks of Catskill aqueduct, including plant for controlling, regulating and aerating water leaving Ashokan reservoir, the principal of which are a lower gate-chamber, a screen chamber, an aerator, special and standard aqueducts in open cut, aggregating $\frac{1}{4}$ mile in length, waste-weirs, a waste-channel, a concrete Venturi meter, and other appurtenances: Jules Breuhaud, 290 Broadway, New York City, \$1,146,600, awarded contract; David Peoples, 1,000 Betz Bldg., Philadelphia, Pa., \$1,237,150; Geo. W. Rogers, 29 Broadway, New York City, \$1,242,770.

Shane & Triesl Co., 143 Liberty st., city, at \$1,643,365, were low bidders, at opening, Dec. 2, for the construction of seven steel pipe siphons, consisting of riveted steel shell $\frac{9}{16}$ in. in diameter, enveloped in concrete and lined with Portland cement mortar, aggregating 3.7 miles, together with 3,000 ft. of aqueduct; there were four other bids submitted by the American Pipe and Contracting Co., F. V. Smith Contracting Co., the East Jersey Pipe Co., and the Pittsburg Contracting Co., which ranged to a little over \$2,000,000.—J. A. Bensel, President Board of Water Supply; J. Waldo Smith, Chief Engineer.

Columbus, O.—Bids were opened by Board of Public Service on Nov. 20 for 200 tons of c.-i. pipes for Water Works Department, pipes to be 6, 8 and 12-in. James B. Clow & Sons, 350 Franklin st., Chicago,

bid \$27.25 ton for the regular sizes and 2½c. lb. for the special castings. U. S. Cast-Iron Pipe & Foundry Co., Columbus, bids \$25.90 per ton for the regular sizes and 2½c. per lb. for special castings.

Lawton, Okla.—Kirby, Mayfield & Shaw have secured contract for improvements to the water works at \$14,000 from plans by J. S. Bayless.

Newport, Ore.—Council closed all contracts for material and construction of new water-works system; time limit for the completion of the work is five months. To George Lee, Cottage Grove, was awarded contract for construction work, and Portland Wood Pipe Company will furnish material; estimated cost of system is \$28,000.

Providence, R. I.—Board of Contract and Supply has awarded contract for 40,000 lbs. of pig lead to Nassau Smelting & Refining Company, of New York, for total sum of \$1,790, or at the rate of \$4,475 per hundred pounds.

Contract for 53,000 lbs. of lead pipe, various sizes, was awarded to Allen & Reed, Inc., for total sum of \$2,790.45, less 2 per cent net on payment in 10 days. Contract for special castings was awarded to Fuller Iron Works, Providence, in estimated sum of \$3,868.77. Contract for taps, stops and plugs was awarded to Allen Fire Department Supply Company, city, in total sum of \$1,297.50.

Bids on hydrants and water gates were reserved for further consideration.

Dallas, Tex.—The contract for the furnishing of tees, plugs, bushes and certain supplies for the Water Department was given to the Briggs-Weaver Machinery Co. at \$8.01; Crane Co. bid \$9.51. Crane Co. got the bid for hub and gate valves at \$50.27.

Dallas, Tex.—New pumping engine for White Rock Reservoir is to be furnished to city by William Tod Co., at \$75,000 for best of three types of pumps offered to city by this company; it is to maintain a head against 168,000,000 foot pounds and is to have a capacity of 20,000,000 gallons of water in 24 hours.

Salt Lake City, Utah.—Only bid received by the Board Public Works for installing a reinforced concrete diverting weir in Parley's Creek at 12th South st. was submitted by McKay & Reed for \$6,743; it was rejected as being too high.

North Yakima, Wash.—Contract for constructing a pumping plant near Beverly on Columbia River has been awarded to Theo. Weisburger, city, for \$24,881.—R. J. Logan, Secretary Rose Land Co.

Milwaukee, Wis.—Bids were opened Nov. 26 by Board Public Works for furnishing material and constructing for the Water Department a concrete-lined tunnel under and across Milwaukee River at E. Water st. and to lay a 36-in. water main in said tunnel, and the contract has been awarded to the West Construction Co., city, for \$24,210.—C. J. Poetsch, Chairman.

LIGHTING AND POWER

Mobile, Ala.—Mobile Street Railway will expend about \$100,000 in improvements to power plant.—Stone & Webster, Boston, Mass., Engineers in Charge.

Benson, Ariz.—Benson Lighting Co. will install an electric lighting plant.

Globe, Ariz.—Apache Power Co. is having preliminary plans prepared for construction of power plant at Apache Falls; cost about \$600,000.—E. T. Stewart, Engineer; G. R. Hill, City Secretary.

Hayward, Cal.—D. U. Tefelmier, of United Power Co., has petitioned City Trustees for franchise.

Los Angeles, Cal.—City has passed ordinance providing for ornamental lighting of Pico.

Napa, Cal.—Napa Gas & Electric Company will extend its transmission line to Napa Soda Springs.—O. E. Clark, Superintendent.

Pasadena, Cal.—Southern California Edison Electric Company will install meters throughout city.

Porterville, Cal.—S. E. Henley will construct power plant from plans of Holley & Holley, Visalia; cost \$150,000.

Salinas, Cal.—Monterey County Gas and Electric Company has been granted franchise for power line between this city and Monterey.

Santa Cruz, Cal.—Advisory Committee has recommended extension of city light service; systematic and uniform system of lighting and fixtures and other improvements; \$250,000 bond issue is favored.

Denver, Col.—Chama Power Company has been incorporated, capital \$15,000, by H. C. Briggs, William I. Spratt and Huse Taylor.

Pueblo, Col.—Pueblo & San Luis Valley Electric Railway Company is planning for construction of electric power plant to furnish electricity to operate its railway and to drive centrifugal pumps for both irrigation and drainage purposes.

Niantic, Conn.—New London & East Lyme Street Railway Company is considering extension of its electric lighting system through Main st.

Senoia, Ga.—W. B. Baggally, H. L. Ware, A. O. Baggally and J. A. McKnight are organizing company to establish and operate electric light plant.

Grangeville, Idaho.—A. W. Trine, 1815 Boone ave., Spokane, Wash., is interested in formation of company which proposes construction of dam and power plant on Salmon and Snake Rivers near this city.—R. J. Zell, Spokane, Engineer.

Farmer City, Ill.—Improvement of municipal light plant is being considered.—C. E. Conover, Chief Engineer.

Springfield, Ill.—Committee on Street Lighting has recommended purchase of equipment and machinery to supply 400 additional arc lamps for the city at cost of about \$30,000.—Alderman Butzman, Chairman.

Evansville, Ind.—Board of Public Works is considering franchise proposed by Evansville Public Service Corporation for supplying by central station steam and hot water heat and electric light power to Evansville; Charles A. Gillham, Secretary and General Manager of Central Station Engineering Company, of Chicago, Ill., is on ground to make preparations for the local corporation which will undertake the equipment and operation of a \$1,000,000 plant to be built if franchise is granted.

Muncie, Ind.—R. O. Lord, representing Harris Trust and Savings Bank, Chicago, has purchased all property of Muncie Gas, Light & Fuel Company; \$150,000 will be spent in improvements; title will be invested in Western Water, Light & Traction Company of Chicago.

Oelwein, Ia.—Oelwein Light, Heat & Power Company is considering construction of new generating station and installation of additional machinery.

Sioux City, Ia.—Citizens will vote Dec. 21 on granting franchises to Sioux City Gas & Electric Co. and the Sioux City Service Co., to operate electric light and power and gas plant.

Paris, Ky.—Council has approved sale of 20-year light franchise to Paris Electric Light Company.

North Orleans, La.—Consumers' Electric Co. is considering reorganization with increased capitalization of \$1,000,000 and enlargement of plant.

Plaquemine, La.—J. H. Pugh has purchased Plaquemine Electric Light & Power Co.'s franchise and property and will organize new company.

Lewiston, Me.—Ram Island Power Co. has been organized, capital \$100,000, to furnish electricity for heat, light and power purposes in Lewiston, Auburn, Minot, Greene, Turner, Leeds, Livermore, East Livermore and Jay.—Roscoe T. Holt, Portland, President.

Hyattsville, Md.—Residents of East Hyattsville have petitioned for lighting facilities.—W. P. Magruder, Mayor.

Hyattsville, Md.—Riverdale Citizens' Association is considering installation of street lighting system.—Jos. Fanning, Chairman Special Committee.

Essex, Mass.—Citizens have voted \$1,600 to light streets by electric lights instead of by present system of oil lights and reflectors.

Hyde Park, Mass.—Hyde Park Gas & Electric Company has applied to State Board of Gas and Electric Light Commissioners for authority to issue \$21,750 additional capital stock; proceeds will be used to enlarge property.

Pittsfield, Mass.—Pittsfield Electric Co. has selected Stone & Webster, Boston, to prepare plans for developing increase of 1,000 h.p. at its plant at Silver Lake.

Chesaning, Mich.—Council is considering purchase of water power rights with a view to developing same for furnishing power to operate municipal electric light and water plants.

Hancock, Mich.—City will soon purchase pumping engine, or centrifugal pump motor driven.

Mendon, Mich.—City is considering construction of electric lighting station at Parkville and transmission of the current to Mendon.

Pontiac, Mich.—Detroit Edison Co., or Detroit, is considering construction of converting station in business district; cost about \$20,000.

Duluth, Minn.—Council has called election, Feb. 1, on \$200,000 light and water bonds.

Jefferson City, Mo.—Big Naunga Power Co. will establish water power electric plant at Jefferson City; will construct dam; cost about \$45,000.—I. Phillips, Buffalo, President; A. N. Martin, Secretary.

Tarkio, Mo.—Council is considering installation of electric lighting system.

Columbia Falls, Mont.—Council has received application from Mr. Farrar for franchise for electric light plant.

Conrad, Mont.—Plans will be prepared by C. T. Sacker and C. D. Flaherty, Engineers, Livingston, for electric light and water works system.

Hastings, Neb.—Company of residents is being formed to install electric light plant.

Albany, N. Y.—Certificate of incorporation of Long Beach Power Company has been filed with Secretary of State; capital stock \$200,000; Directors are as follows: Lewis G. Wallace and Alfred B. Cadley, of Brooklyn; George G. Fry, of Mamaroneck, and F. W. Cooper, of New Rochelle.

Middleport, N. Y.—Niagara Falls Transmission Company has been granted franchise by village to cross streets.

Mineville, N. Y.—Mineville Light, Heat & Power Company is considering construction of electric generating station to furnish electricity.

Monroe, N. Y.—Orange & Rockland Electric Co. will purchase direct-connected, 60-cycle, 3-phase, 2,200 or 2,300-volt unit of not less than 500 k.w. nor more than 1,000 k.w.—R. W. Smith, President.

St. Johnsville, N. Y.—East Creek Electric Light & Power Co. has applied to Public Service Commission for permission to increase its capital stock; company plans additional water power on East Canada Creek at Ingham's Mills.

White Plains, N. Y.—Lighting Committee has recommended installation of 28 additional lights.

Franklin, N. C.—Henry O. Cozad will construct electric light plant.

Hettinger, N. D.—C. A. Meyer, Clarkfield, Minn., has decided to install electric light plant.

Cincinnati, O.—Director Small, Department of Public Safety, has accepted plans of Samuel Hannaford, Hulbert Blk., for heating, electric work and boilers for power plant of contagious group at City Hospital.

Enid, Okla.—L. J. Downey has petitioned Council for franchise to construct and operate electric power system.

McKeesport, Pa.—Water and Lighting Committee will recommend installation of 25 additional arc lamps.

Milton, Pa.—Milton Electric Light & Power Co. will build new high-tension power plant and reconstruct system.

Scranton, Pa.—Scranton Electric Co. is considering \$500,000 expenditure in improvements, including construction of central plant.

Wilkes-Barre, Pa.—Luzerne County Gas and Electric Co. has planned to extend its service; residents of Dallas are considering advisability of lighting town.

Providence, R. I.—The Narragansett Electric Lighting Co. has purchased site onough st. for erection of transformer station.—H. B. Lisle, General Manager.

Beaufort, S. C.—City will install proposed electric light plant at cost of \$18,000.—R. A. Long and W. F. Marscher, Engineers.

Howard, S. D.—C. A. Laurson is interested in project to establish electric light plant; company will be organized to operate the plant.

Tyndall, S. D.—Plans are being considered for the construction of a municipal electric light plant; cost from \$16,000 to \$18,000.—C. H. Stanfield, Yankton, Consulting Engineer; J. J. Mauz, City Recorder.

Bristol, Tenn.—Bristol Gas & Electric Co. has sold control to New York capitalists, who will undertake construction of \$250,000 water power electrical plant for augmenting present facilities and providing for future needs.

Henning, Tenn.—J. R. Gregory, J. B. Alston and J. W. Wilson will build 30-k.w. electric light plant and 10-ton ice plant.

Stanton, Tenn.—Electric light plant will be installed.—G. N. Albright is interested.

Bellville, Tex.—Bellville Promoting Co., organized by C. F. Hellmuth, will establish electric light plant; about 700 lights.—W. A. Matthael, Secretary.

Salt Lake City, Utah.—Mayor J. S. Bransford is working out details for municipal power plant to be established at Pailey's Canyon reservoir, and will supply power to city sewer station and also for lights in business district; cost at least \$50,000.

Bedford City, Va.—Town Council has ordered election Dec. 29 on \$95,000 bonds to construct water power electrical plant on James River.

Centralia, Wash.—F. C. Brewer and W. W. Seymour, of Aberdeen, have been granted gas franchise by Council; franchise is for a term of 25 years; plant must be in operation within six months.

Tacoma, Wash.—Commissioner of Public Works has recommended that Council at once advertise for bids for construction of power canal and headwork of proposed \$2,000,000 power plant.

Kimball, W. Va.—L. Kaufman, Northfork, will begin at once erection of power house and other buildings necessary for construction of proposed electric light plant and water works; cost, **exclusive of site**, \$100,000.

New Martinsville, W. Va.—New Martins-

ville Electric Light, Heat & Power Company has been granted franchise to furnish electricity for lamps in Brooklyn.

Romney, W. Va.—Boston Water Development Co. will build water power electrical plant.—R. F. Barry, President.

BIDS RECEIVED AND CONTRACTS AWARDED

New Haven, Conn.—Following bid was submitted to City Council by the United Illuminating Co., G. L. Clock, Chief Engineer, for furnishing electricity for street lighting for a term of four years; For supplying from 625 to 700 lamps at 20c. per night per lamp, or \$73 per lamp per year; over 700 lamps at 19½c. each per night. New Haven Gas Light Co. submitted a bid for gas lamps at \$21.80 per lamp per year, of which there are 1,300.

East St. Louis, Ill.—Mayor Silas Cook and City Clerk John F. May have been authorized by Council to execute a contract with Consumers' Light, Heat and Power Company for lighting the city hall, police headquarters, fire stations and streets for ten years at a cost of \$70 per lamp per year; contract was awarded the Consumers' Company by Council Nov. 8.—W. H. Haus, hardware merchant, President of Consumers' Company.

Shirley, Ind.—Michael Glazier, of Newcastle, has received contract for the brick work of the three subpower stations of the Indianapolis, Newcastle & Toledo Traction line.

New York, N. Y.—Contract has been awarded by Department of Corrections for furnishing all labor and material required to install new heating system in the Second District Prison, Jefferson Market, 10th st. and 6th ave., to Albert Winterwitz, 237 East 72d st., at \$5,200.

Willard, N. Y.—Bids were opened Oct. 6 by State Commission in Lunacy for furnishing and installing a direct-connected engine and 75-k.w. direct-current dynamo at Willard State Hospital, Willard; contract was awarded, Nov. 19, to Frost & Sheldon, of Albany, for \$3,440.—T. E. McGarr, Secretary.

Akron, O.—Board of Public Service has awarded contract for furnishing gas lights for city for next five years to Attorney Scott D. Kenfield. Kenfield's bid was \$17 per lamp, per year.

Philadelphia, Pa.—Contract for maintenance of gasoline lamps for next year has been awarded to Weisbach Gas Light Co. at \$29 per lamp; the same company also secured contract for new lampposts, as required, for \$7.50.

Ramona, S. D.—Citizens Light & Power Co. has awarded contract to H. P. Mortensen, of Toronto, S. D., for installation of electric light plant for \$2,000.

Alexandria, Va.—Rosslyn Electric and Gas Co., D. S. Mackall, President, has awarded contract to United Gas Improvement Co., Philadelphia, Pa., for laying mains and erecting gas making plant.

Richmond, Va.—Contracts were awarded by the Council Committee on Electricity, Nov. 26, for the steam and water piping, condensing system and drainage plant of new municipal electric plant, to the Southern Plumbing & Electric Co. at a total of \$9,667, and for pumps and heater for same to H. Ellis, Jr., for \$739.

Toronto, Ont., Can.—Hydro-Electric Commission has awarded contract to the American Aluminum Co. of America, Pittsburgh, Pa., for 1,500,000 lbs. of ½-in. aluminum wire to be used in connection with the distribution of electricity generated at Niagara Falls throughout Ontario, at about \$400,000.

FIRE EQUIPMENT

Long Beach, Cal.—Fire Commission has advertised for bids for erection of engine house.

Oakland, Cal.—Bids will be received Dec. 22, 10 a. m., by Board of Public Works for furnishing one combination chemical and hose wagon and one third size steam fire engine for fire department.—W. B. Fawcett, Secretary.

Ross, Cal.—Town Trustees will purchase automobile hose and chemical machine.

San Bernardino, Cal.—Mt. Vernon residents have petitioned for fire station at Rialton and Mt. Vernon aves.

Santa Cruz, Cal.—Advisory Committee has recommended establishment of fire alarm system; establishment of well-equipped hose stations at strategic points; greater water pressure; duplicate water mains connecting reservoirs with our city water mains; larger water storage and adequate number of fire hydrants; election on \$250,000 bonds is advised.

Pueblo, Col.—Fire Chief Willis has asked for patented helmets for members of department.

Bridgeport, Conn.—Chief Mooney is urg-

ing need of more auto-chemicals; erection of fire house in North End is being considered.

Hartford, Conn.—Chief Krug has recommended additional fire protection for Federal Hill.

Rowayton, Conn.—Purchase of chemical wagon is being considered.

Waterbury, Conn.—City is considering purchase of combination ladder truck.

Willimantic, Conn.—Purchase of hand-drawn chemical engine and hose wagon is being considered.

Daytona, Fla.—Council is considering resolution looking to issuance of city bonds to provide for purchase of electric fire alarm system and apparatus and building place to house such apparatus.

Augusta, Ga.—Council has authorized Fire Committee to purchase automobile for Chief Reynolds.

Macon, Ga.—Chief L. M. Jones is considering purchase of new chemical automobile.

Sandpoint, Ida.—Citizens will vote on \$4,000 bonds for installation of fire alarm system.

Chillicothe, Ill.—Council is considering purchase of better fire fighting apparatus.

Rockford, Ill.—Council has decided to purchase fire engine.

West Terre Haute, Ind.—Citizens are urging purchase of fire engine.

Dubuque, Ia.—City is considering purchase of 2,000 ft. of hose and auto fire engine.

Chanute, Kan.—Board of Education will place c-i. fire escapes on all school buildings.

New Orleans, La.—City will install 50 new fire alarm boxes at cost of \$7,500.—J. J. Fraley, Chairman Budget Committee.

New Orleans, La.—Council is considering ordinance for engine house in Ninth Ward.

Belfast, Me.—City will build fire house and purchase new hose.

Hyattsville, Md.—Plans are being secured by Councilman Fainter for proposed fire department building to be erected on Ravenswood ave.

Fall River, Mass.—Fire Commissioners desire \$2,500 for new hose.

Newton, Mass.—City will purchase auto truck.

Northampton, Mass.—Town is considering establishment of home for Deluge hand engine.

Rochdale, Mass.—Citizens of this place and Greenville are urging need of two chemicals.

Seekonk, Mass.—City will build and equip fire house.

Springfield, Mass.—Fire Commissioners have asked for \$40,000 appropriation to purchase motor driven apparatus.

Grand Rapids, Mich.—City has rejected all bids received for erecting Lagrave st. engine house; new bids will be asked; \$30,000 is available.

Kalamazoo, Mich.—Architect F. D. Van Volkenburg has prepared plans for \$8,000 fire station.

Ripley, Mich.—Funds are being raised for purchase of apparatus for newly formed fire company.

Duluth, Minn.—Fire Department has been allowed \$3,900 for fire engine at West Duluth.

St. Louis, Mo.—Chief Swingley has asked for another supply of hose.

Manchester, N. H.—Board of Fire Underwriters has recommended improvements to fire department at cost of \$400,000.

Swanzey, N. H.—Town will erect fire station.

Atlantic City, N. J.—Ventnor City will vote Dec. 14 on installation of new fire department at an outlay of about \$15,000.

Irvington, N. J.—Council has decided to erect \$17,000 fire station on Washington ave.—Jos. B. Allen, Architect.

Newark, N. J.—The Newark Underwriters Protective Association will purchase automobile for the salvage corps.

New Durham, N. J.—Jos. Turch, Architect, is preparing plans for fire house.

Ridgewood, N. J.—Fire Chief J. D. O'Neill has visited Plainfield to inspect fire system, with view to getting ideas.

Roosevelt, N. J.—Fire Company No. 2 is urging erection of home.

Albany, N. Y.—Board of Estimate and Apportionment has approved ordinances providing for erection of truck house.

Brockport, N. Y.—Fire Chief Fred Schlosser has recommended purchase of chemical apparatus.

Cohoes, N. Y.—City is considering purchase of 75-ft. aerial truck, 700-gal. auto engine and hose wagon, and combination auto double-tank chemical and hose wagon, additional chemical apparatus and 3,000 additional feet of hose.

Geneva, N. Y.—Taxpayers will vote on proposition to purchase fire truck for Folger Hook and Ladder Co.; City Property Committee will secure estimate of cost of erecting two-story addition to home of the Folger Co.—R. H. Gulvin, Fire Chief.

New Castle, Pa.—City is considering purchase of site at corner of Mercer and South sts. for erection of engine house.

White Plains, N. Y.—Southside Company is in need of better fire apparatus.—Dr. W. J. Mayer is interested.

White Plains, N. Y.—Fire Chief Brown has asked for \$17,000 for department wants; new apparatus for South Side and Chesteron Hose Companies, installation of large electric fire alarm, additional fire boxes, and extension of fire wires are desired.

Griffin, O.—Council is considering appropriation for improving fire alarm system.

Halleyville, Okla.—City will purchase chemical engine and 500 ft. of hose.

Portland, Ore.—Fire Committee has accepted plans by Architect L. B. Flickinger for erection of proposed Mount Tabor engine house.

Glenolden, Pa.—Fire company is considering erection of fire house.

Homestead, Pa.—Homerville Volunteer Fire Company No. 1 will erect fire building.

Kutztown, Pa.—Site has been secured for erection of central fire department headquarters and town hall.

Warwick, R. I.—Pawtuxet Valley is in need of better fire protection; more hose and equipment is also desired.

Woonsocket, R. I.—Committee on Fire Department has selected Fontaine & Kinnett, Commercial Bldg., to prepare plans and specifications for proposed \$15,000 fire engine house.

Amarillo, Tex.—Fire Chief Jones is urging purchase of auto.

Waco, Tex.—Work will begin at early date on two new fire stations, one on Reservoir Heights, other to be built on Bell's Hill.—John Wright, Fire Commissioner.

Waterloo, Wis.—City is in need of engine and hose cart.

Prince Rupert, B. C., Can.—Bids will soon be received for construction of fire hall.

BIDS RECEIVED AND CONTRACTS AWARDED

Minneapolis, Minn.—Proposals to furnish one automobile for the Police Department have been received as follows:

Fawkes Auto Company, one Overland with equipment for \$1,651; or one 40 h.p. Marmon for \$2,781.

Northwestern Cadillac Company, one Cadillac with equipment for \$1,785.

The Motor Sales Company, one Petrel with equipment for \$1,855; or one Apperson Jack Rabbit with equipment for \$2,390.

Barclay Auto Company, one Chalmers-Detroit "30" with equipment for \$1,629; or one Chalmers "40" with equipment for \$2,700.

Victoria Motor Car Company, one Model K Pullman with equipment for \$2,000.

Pence Automobile Company, one Model 17 Buick Touring Car with equipment for \$2,000.

Deere & Webber Company, one Model D Touring Car with equipment for \$1,425.

A. F. Chase & Company, one Model T Mitchell Touring Car with equipment for \$1,500; or one Model S Mitchell with equipment for \$2,000.—H. N. Knott, City Clerk.

Omaha, Neb.—Guy L. Smith has been awarded contract for furnishing police patrol for city, price for Franklin to be \$3,760; if a smaller car is needed later it is to be 10 per cent less.

Schenectady, N. Y.—The American Locomotive Co., New York City, has been awarded contract to furnish Alco automobile for Fire Chief Henry R. Yates for \$1,500.

ELECTRIC RAILWAYS

Globe, Ariz.—J. B. Girard is interested in proposition to establish electric street railway in this city.

Hayward, Cal.—Residents of Mount Eden, Upper Hayward, Castro Valley and Eastern San Leandro are planning to petition Oakland Traction Company to construct new street car line that will embrace their different districts.

Petaluma, Cal.—Highland Pacific Electric Railroad is procuring rights-of-way to operate electric line from Lakeport to Santa Rosa via Cloverdale.

San Francisco, Cal.—Citizens will vote on \$2,020,000 bond issue for municipal street railway from ferry to park and back.

Grand Junction, Col.—Grand Junction Street Railway Co. will begin work at once on line to Fruita; distance 15½ miles.—E. A. Sunderlin, Mineral Exchange Bldg., Colorado Springs, General Manager.

Washington, D. C.—Washington Spa Springs & Greta R. R. Co. will soon take up building of first section of line which embraces the territory between 15th and H. sts. and Baltimore Pike and Bladensburg rd.—S. S. Yoder, President.

Pensacola, Fla.—Pensacola Development & Construction Co. has asked for right to build street railway from Hyer st. along Peterson and other streets.

Irwinton, Ga.—Irwinton Railway Co. has been chartered to build electric railway from McIntyre to Irwinton; distance 3½ miles; capital stock \$15,000.—J. L. Byington, J. W. Lindsey, G. H. Carswell, I. B. Stinson and I. E. Burkett, Incorporators.

Paris, Ill.—Paris & Northern Railway Co. is obtaining right-of-way for proposed line which is to run from this city to Danville; distance 22 miles; capital stock \$5,000.—W. M. Bridgett, Danville, President and Purchasing Agent.

Rock Island, Ill.—Committee of Twelve, F. C. Wenkmann, Chairman, has been selected to confer on proposed Buffalo Prairie-Rock Island electric line.

Bristol, Ind.—The Trustees have granted franchise to the St. Joseph Valley Traction Company, Elkhart, to construct electric railway through town.—H. E. Bucklen, President.

Greenfield, Ind.—Perry J. Freeman, Richmond, is organizing company to build interurban railway from this city to Pendleton; distance 16 miles.

Charles City, Ia.—Arthur Dennis, Secretary, Commercial Club, is interested in construction of street railway to Greene.

Clinton, Ia.—Clarke Construction Co., Chicago, Ill., is interested in construction of interurban electric railways between Sterling and Clinton and Dixon and Freeport.

Iowa City, Ia.—Iowa City, Ottumwa & South-Eastern Electric Railway has been incorporated for purpose of building electric railway from this city to Ottumwa; distance 80 miles.—S. J. Smith, Roscoe Wilson, Frank Farmer, Iowa City, and G. P. Peterson, Pierre, S. D., Incorporators.

Sioux City, Ia.—L. F. Phillips, Wagner, S. D., is interested in construction of interurban line to Mitchell, S. D.

Hutchinson, Kan.—Local street car company will improve system.

Topeka, Kan.—Wichita Terminal Railway Co. has secured charter to do business in this State; company is capitalized at \$100,000 and operates 50 miles of railway in Sedgewick County; it has for its object the operation of a belt line road to connect with all the railways entering Wichita.—Michael Cudahy, Chicago; C. H. Brooks, C. W. Southward and C. Q. Chandler, Wichita, and Talton Embry, Cincinnati, Incorporators.

Springfield, Mass.—State Board of Railroad Commissioners has been sent petitions from the Springfield Street Railway Company: For approval of relocation of tracks in State, Main, Locust and North Main sts.; also petitions for certificate of approval preliminary to operation in North Main st., between Morgan and Bancroft sts., in Main and Locust sts., and in State st., from Oak to Stebbins st.

Lewiston, Mont.—Spring Creek Power & Electric Co. has been incorporated to construct electric railways and power plants.

Red Lodge, Mont.—Commercial Club is interested in proposition to construct electric road between this city and Laurel.

Omaha, Neb.—Nebraska Transportation Co. will build electric line connecting this city and Fremont; construction will begin next spring.—C. W. Baker, city, President.

Ely, Nev.—General Traffic Manager W. R. Alberger and Chief Engineer C. M. Raso, of the Tonopah and Tidewater Railway, are securing right-of-way from County Commissioners of White Pine County and arranging terminal privileges with Council for Ely-Goldfield road.

Morristown, N. J.—Morris County Traction Company will soon place contracts for construction of five miles of single track.—G. C. Gochnauer, President.

Albany, N. Y.—Westchester Street Railway Co., White Plains, reorganization of former Tarrytown, White Plains & Mamaroneck Railway Company, electric road, recently acquired by New York, New Haven & Hartford interests, has been incorporated with a capital of \$1,000,000. Directors are: Richard Sutro, William Greenough, Charles M. Sheafe, Jr., William Barnett, John L. Anderson, Frank F. Hall, Edward O. Brown, of New York; John G. Parker, Augustus S. May, of New Haven, Conn.

Brooklyn, N. Y.—In order to provide Brooklyn with adequate system of transportation, as well as to avert threatened competition, Brooklyn Rapid Transit Company is ready to spend \$50,000,000.

Asheville, N. C.—M. L. McCormick, St. Paul, Minn., is considering constructing electric railway from this city to Waynesville.

Enid, Okla.—L. J. Downey has applied for franchise to build electric street railway and power system.

Corvallis, Ore.—Oregon Electric Railway is considering extension of one of its lines to this place.

Ontario, Ore.—D. G. Sutherland, of this city, has applied for franchise to build electric railway; franchise will be sold Dec. 14.

Harrisburg, Pa.—Governor Stuart has

approved charter for McKeesport Belt Line Company, electric line two miles long, about portions of McKeesport; capital \$12,000.—S. B. Foster, McKeesport, President.

Pittsburg, Pa.—The West Penn Railway Co. has taken charter extensions from Greensburg to New Alexandria; distance 7 miles; from Uniontown to Leisenring, 7 miles; from Hunker to W. Newton, a distance of 10 miles, and from W. Newton to Scott Haven, 5 miles.

Colorado, Tex.—Colorado and Concho Railway Co. has been incorporated to build line from this city through Mitchell, Lee and Cook Counties; distance 60 miles.—C. W. McCutcheon, P. D. Coulson, W. F. Depree, W. K. Adams, S. D. Kemp and J. C. Cunningham, Incorporators.

Houston, Tex.—The Houston Electric Co. will improve and extend system.—David Daly, General Manager.

Port Arthur, Tex.—Port Arthur Traction Co. has asked for bids for grading line from city limits along the 7th st. extension to docks.

Uvalde, Tex.—Uvalde Street Railway Company will build extension of its railway from this city to Batesville; distance 30 miles.

Colonial Beach, Va.—Plans have been completed for construction of four miles of electric railroad between Colonial Beach and Classic Shore; Town Council has granted John G. Capers, Washington, D. C., representing the company, franchise to run track through town, and Corporation Commission has granted rights for balance of line.

Richmond, Va.—Virginia Railway and Power Co. will expend \$600,000 in improvements; 20 pay-as-you-enter cars will be purchased.—Wm. Northrup, President.

North Yakima, Wash.—Street Railway Co. will extend lines to Fruitvale; distance four miles.—N. R. Richards is interested.

Olympia, Wash.—Eldridge Wheeler, of Montesano, has applied to Board of County Commissioners for a franchise for building line of electric railway from this city to Hoquiam.

Walla Walla, Wash.—Council has granted Northwestern Corporation franchise to construct and maintain electric railway on certain streets.—T. D. P. Hart, City Clerk.

Walla Walla, Wash.—Northwestern Corporation has announced its intention of building line from Walla Walla, Oregon, to Walla Walla; from Dayton to Walla Walla, and from Wallula and Pasco to Walla Walla; work on lines will begin in spring.

Wheeling, W. Va.—Rapid Transit Railway Company has applied to Ohio Board of County Commissioners for franchise to construct electric railway on certain streets and highways in county.

Madison, Wis.—J. A. Aylward, in behalf of Cincinnati Construction Company, has applied for franchise to construct interurban road between this city and Janesville.

Milwaukee, Wis.—Council has granted a franchise to Milwaukee Electric Railway & Light Company to operate cars over 16th st. viaduct.

Windsor, Ont., Can.—Sandwich, Windsor & Amherstburg Railway Co. will at once place contracts for two 500-k.w., 3-phase, direct-connected alternators, and also two 750-h.p. engines.—Jas. Anderson, General Manager.

BIDS RECEIVED AND CONTRACTS AWARDED

Oklahoma City, Okla.—Oklahoma Railway Co. has awarded a contract to John Alley, city, for grading and bridge work on its proposed extension between Capitol Hill and Moore; distance 7 miles.

BRIDGES

Eureka, Cal.—County is considering construction of steel bridge, substructure of the proposed bridge to be of cement.—G. W. Conners, city, County Surveyor.

Santa Cruz, Cal.—Advisory Committee has recommended erection of concrete bridge on Water st. and repair of Soquel ave. bridge; election on \$250,000 bonds for improvements is favored.

Denver, Col.—State Engineer Charles W. Comstock will make preliminary arrangements for construction of bridge over Grand River; cost more than \$40,000.

Glenwood Springs, Col.—County Commissioners have adopted resolution providing for construction of two bridges across Grand River, one at Lacy and the other at Una; cost \$30,000.

Coryville, Fla.—Washington County Commissioners will build bridge across Cypress Creek; work will begin Jan. 1.

Sylvester, Ga.—W. J. Edwards, President Gulf Line Railway Co., desires prices on span of part wood and steel span highway bridge; will span river 400 ft. wide.

Cambridge, Ill.—County has voted to construct bridge over Rock River; cost \$28,000.

Havana, Ill.—Committee of Supervisors of

Mason and Menard Counties is considering construction of proposed bridge over Salt Creek.

Peoria, Ill.—Council is considering \$250,000 bond issue for bridge at foot of Bridge st.

Hutchinson, Kan.—City Engineer G. L. McLane has prepared plans for bridges of 40, 50 and 60-ft. spans; city will select one of these for proposed Main st. bridge over Coin Creek.

St. Paul, Minn.—City and railroad company will construct bridge over railroad tracks at Earl st.

Lewistown, Mont.—Fergus and Melstone Counties have decided to erect bridge at Melstone.

Omaha, Neb.—City Engineer Craig has submitted to Council revised plan for proposed Locust st. viaduct.

Rochester, N. Y.—City is considering construction of steel and concrete bridge over river at Central ave.

Tonawanda, N. Y.—New York Central has authorized \$94,000 appropriation for construction of steel lift bridge over Erie Canal.

Winston-Salem, N. C.—Bridge will be constructed on National Highway; definite plans not made; cost \$2,500.—J. S. Kuykendall, Secretary Board of Trade.

Chillicothe, O.—The Norfolk & Western Railway Co. has completed plans for bridge to be constructed over Scioto River.

East Palestine, O.—Columbia County Board of Commissioners instructed County Engineer French to prepare plans and specifications for bridge to be constructed near the pumping station.

Hamilton, O.—Butler County will construct new canal bridges at Heaton st. and at Brand blvd.

Newark, O.—Bids will be received Dec. 18 for \$30,000 bridge bonds.—C. R. Riley, County Auditor.

Portland, Ore.—Plans of Waddell & Harrington for proposed East 12th st. steel bridge across Sullivan's Gulch have been approved by City Executive Board, and City Auditor directed to advertise for proposals for erection of structure.

Harrisburg, Pa.—Council has passed second reading loan bill providing \$300,000 for bridge at Walnut st.; also \$25,000, city's share, for bridge at 13th st.

Hazleton, Pa.—County Commissioners are inspecting sites for proposed county bridges recommended by recent grand jury and which are yet to be erected during the coming year; total cost \$40,000.

Philadelphia, Pa.—Councilmanic Boards have passed resolutions providing for construction of bridge over Norristown branch of Reading Railway at Fox st.

Pittsburg, Pa.—Council has taken up movement to have new tunnel dug through Mount Washington to connect with new bridge over Monongahela River.

Pittsburg, Pa.—Finance Committee will consider \$560,000 appropriation for bridge in Cayuga st.; both branches of Council have passed ordinance granting West Side Belt right to build steel bridge over West Carson st.

South Bethlehem, Pa.—Lehigh Valley Transit Co. is considering either building of new structure or addition to New st. bridge.

Columbia, S. C.—Seaboard Air Line Railway will expend about \$500,000 in construction of proposed Lincoln st. viaduct.

Beaumont, Tex.—Bee County will receive bids for construction of steel bridge over Aransas Creek.—Dan Troy, County Clerk.

Fort Worth, Tex.—Fort Worth Stockyards Co. will construct reinforced concrete bridge across Marine Creek.

New Braunfels, Tex.—Comal County Commissioners will construct low concrete bridge across Guadalupe River at Gruene's Crossing.

Big Stone Gap, Va.—Citizens have voted \$22,000 bonds for constructing bridges and streets; plans will be received.—W. H. Horton, Mayor.

Danville, Va.—City is considering \$100,000 bond issue for construction of bridge and improving West Main and Worsham sts.

Seattle, Wash.—Street Committee has adopted plans for construction of wooden bridge over Government waterway at West Garfield st.

Spokane, Wash.—City has awarded \$500,000 bridge bonds to Harris Trust and Savings Bank.

Woodland, Wash.—County is considering construction of Lewis River bridge at this place.

Wheeling, W. Va.—Bellaire-Benwood and Wheeling Bridge Co. will be incorporated to build bridge over river between this city and Benwood; plans prepared; cost \$700,000.—C. A. Bowers, E. B. Bowles and others, Incorporators.

Medford, Wis.—Plans are being considered for construction of iron and concrete bridge over Black River at Maplehurst.

St. Croix Falls, Wis.—Concrete bridge will be constructed over St. Croix River

between St. Croix Falls and Taylors Falls; cost about \$14,000.

Saskatoon, Sask., Can.—Citizens have voted \$18,000 bonds for erection of footbridge at 20th st.; bids for construction will be received about Jan. 1.—J. H. Truesdale, City Clerk; G. T. Clark, City Engineer.

BIDS RECEIVED AND CONTRACTS AWARDED

Los Angeles, Cal.—Board of County Supervisors opened bids for building four pile trestle bridges over Tejunga Wash, in San Fernando Road District, and Mercereau Bridge & Construction Co. was low bidder, at \$12,700.

Washington, D. C.—Martin MacNamara, of Washington, has secured contract to construct iron bridge over causeway on line of Hume ave. to Anacostia Island from Virginia shore.

Denison, Ia.—Board of Supervisors of Crawford County, Nov. 10, awarded contract for constructing steel and wooden bridges throughout county during 1910 to W. M. Lanna, of Harlan.

Marquette, Mich.—Bids have been opened as follows by Dickinson and Marquette Boards of Road Commissioners for the construction of the proposed bridge over the Michigamme River: Worden-Allen Co., \$5,068; Joliet Bridge & Iron Co., Joliet, Ill., \$4,185; Lake Shore Engine Works, \$4,800; Wisconsin Bridge & Iron Co., North Milwaukee, Wis., \$4,025; Illinois Bridge Co., 115 Adams st., Chicago, Ill., \$3,546. The first four bids are for a steel bridge with concrete floors and the last one for an all concrete structure.

Santa Fe, N. M.—Board of County Commissioners of Bernalillo County has awarded to Missouri Valley Bridge & Iron Co., Leavenworth, Kan., contract for construction of two steel bridges over Rio Grande at \$81,873.

New York, N. Y.—Chas. Meads & Co., 299 Broadway, city, has secured contract for constructing drip pans under Manhattan approach of Williamsburg bridge for \$23,250; bids opened by Department of Bridges, Nov. 18.

Providence, R. I.—Special Commission Oct. 23 received the following bids for the construction of the North Main and Mill st. bridge over the Blackstone River, between Pawtucket and Central Falls, which, according to the items contained in said bids, totalled as follows: Sperry Engineering Co., \$44,510.50, time for completion, 160 days; McKinnon Construction Co., \$51,426, time for completion, 100 days; John Cashman & Sons Co., \$69,604.90, time for completion, 300 days; Frederick E. Shaw, \$69,936, time for completion, 100 days, awarded contract.

Anderson, S. C.—Charleston & Western Carolina Railway Co., of Augusta, Ga., has awarded to Phoenix Bridge Co., Philadelphia, Pa., contract for construction of two bridges on what is known as the Anderson Branch; steel work will consist of one span each; total cost will be about \$20,000.

Dallas, Tex.—Eight bids were submitted to the Board of Municipal Commissioners by firms seeking the contract to erect the concrete bridge over Turtle Creek on Cedar Springs st., and the highest was nearly twice as high as the lowest, all bidding on the same classes and materials for work. This bridge is to be 125 to 150 ft. long, 50 ft. wide and at least 17 ft. in the clear for the creek. The bids, all referred to Street Commissioner William Doran, were: For the construction of the concrete bridge, steel reinforced, with necessary fill, excavation, stone and materials, with railing of iron: D. T. Johnson of Kansas City, \$8,986; R. O. Miracle, Minneapolis, \$13,645; William T. Wesch, Dallas, \$8,900; Weber-Duller Co., Houston, \$14,000; Austin Bros., Dallas, \$9,611; Ball Engineering Co., Dallas and St. Louis, \$17,500; F. H. Lancashire, Dallas, \$10,959; Topeka Bridge Co., \$9,750.

Weatherford, Tex.—Council has accepted the bid of the Weatherford Machine & Foundry Co. for building Elm st. bridge, at \$1,000.

Chehalis, Wash.—Council has awarded the contract for the erection of City Hall building to Ziegler, Denhof & Co., local contractors. The work will proceed at once. The City Hall will be erected on the block on which the new Carnegie library stands and the structure will be a twin building in the general plan of construction. The city will spend about \$15,000 on the hall and the grounds surrounding the buildings.

North Yakima, Wash.—Puget Sound Bridge & Dredging Co., 95 Yesler Way, Seattle, has contract for building new North Coast bridge across Columbia east of town below the Snake River; cost \$75,000.

Spokane, Wash.—Contract for constructing a double-track steel and concrete bridge over Spokane River for the Spokane & Inland R. R. Co. has been awarded to Grant Smith & Co., Fernwell Bldg.

MISCELLANEOUS

Birmingham, Ala.—Mayor Frank P. O'Brien will receive estimates on crematory of 100 tons daily capacity.

Oakland, Cal.—Board of Works has adopted comprehensive resolution introduced by City Engineer Turner for improvements of harbor and construction of municipal buildings.

San Bernardino, Cal.—Council is considering the erection of \$30,000 city hall.

San José, Cal.—Southern Pacific Company will be asked to place gates at all streets crossing its tracks on 4th st. between Santa Clara st. and the southerly city limits.

Stamford, Conn.—City has awarded \$45,000 public park and \$33,000 public library bonds to R. L. Day & Co. at \$100.

Washington, D. C.—An American consul in Latin America has forwarded maps, charts and specifications of some of port improvements planned for city in which he is located; tenders must be received before March 16.—Address No. 4198, Bureau of Manufactures.

St. Petersburg, Fla.—Bids will be received for dredge machinery as follows: A 50-h.p. standard horizontal gasoline engine including foundation bolts; 42-in. diam., 14-in. face friction clutch pulley on governor side; a 30-in. diam. by 10-in. face plain pulley on opposite side from governor; circulating pump 3x4, plain, with medium rubber valves; type "A" Wizard magneto with friction drive pulley; no cooling tank with engine required.—W. F. Devine, City Clerk.

Chicago, Ill.—Harbor Commissioner J. M. Ewen will be asked to prepare plans for dock development; at least \$2,000,000 will be expended.

Fort Wayne, Ind.—City Park Board has inspected sketch prepared by Architect J. M. E. Riedel, for proposed pavilion at Swinney Park, for which Council has appropriated \$3,000.

Fort Wayne, Ind.—County Commissioners have received plans for public lavatories which it is proposed to construct under sidewalks on Main st. side of court house.

Carlisle, Ky.—East Tennessee Telephone Company and L. C. Griffiths, of Louisville, each purchased franchise from city to build, maintain and operate telephone system.

New Orleans, La.—City will construct \$25,000 building in City Park; competitive plans will be invited.—C. Dittman, Chairman Executive Committee.

Baltimore, Md.—Harbor Board has asked the Board of Estimate to prepare estimate of cost of improving pier No. 6.

Amherst, Mass.—Town will consider erection of \$3,000 addition to town hall; A. B. Allen is interested.

Malden, Mass.—Alderman Glennon has offered order for Committee on Street Railways to request erection of waiting rooms on boulevard line.

Marblehead, Mass.—Citizens are urging establishment of police station.

Melrose, Mass.—Citizens will vote on establishment of public playground in center of city.—Alderman J. C. F. Slayton is interested.

Austin, Minn.—City proposes to erect city hall sufficiently large for armory.

Bovey, Minn.—Erection of brick jail in spring is being considered.

Duluth, Minn.—City Health Commissioner Patton will advertise for bids for necessary equipment for contagious hospital.

St. Paul, Minn.—Conference Committee has recommended \$2,000 appropriation for steel tanks for garbage wagons.—Dr. G. A. Renz, Health Commissioner.

Hazlehurst, Miss.—Citizens have voted to purchase Lake Hazle for use as public park.

Omaha, Neb.—Council is considering establishment of bureau of municipal research and statistical information.

Bayonne, N. J.—Hudson County Commissioners have selected two sites in this city for parks.

Elmira, N. Y.—Plans are being prepared by Pierce & Bickford, 118 Lake st., for repairing city hall, lately damaged by fire.

New York, N. Y.—Board of Estimate has given authority to Bridge Commissioner Stevenson to invite bids for construction of \$11,500,000 municipal building on triangular plot at Centre and Chambers sts. and Park Row.

New York, N. Y.—Board of Estimate will consider acquisition of strip of sandy beach extending beyond Rockaway Beach for purposes of seaside park.

Cincinnati, O.—City has awarded \$135,000 hospital bonds to Hayden, Miller & Co. at \$1,793 premium.

Columbus, O.—Board of Public Works will consider their appropriations for next year; they will ask \$250,000 for completion of Ohio Canal and same amount for work on Miami and Erie Canals.

East Youngstown, O.—Council has decided to build site at corner of Broad and

7th sts. for erection of city building and jail.

Massillon, O.—Council will be asked to appropriate \$3,000 for a proposed public comfort station and bandstand in city hall park.—Albrecht and Wilhelm, Architects.

Youngstown, O.—Officials of the Mahoning & Shenango Railway & Light Co. have approved plans of Architect Angus S. Wade for the improvement of Idora Park.

Tulsa, Okla.—City will erect pest house on Arkansas River.

Portland, Ore.—City Executive Board will ask for \$1,200 to purchase two outfits of flushing apparatus.

Erie, Pa.—Council is considering installation of garbage disposal plant.

Kutztown, Pa.—Site has been secured for erection of town hall and central fire department headquarters.

Knoxville, Tenn.—Council has accepted site presented by late A. L. Chavannes for park purposes.

Memphis, Tenn.—City is having plans prepared for erection of comfort stations at Confederate, Court sq. and Forrest Parks.

Galveston, Tex.—Citizens have voted \$225,000 bonds for improvements along beach front.

Richmond, Va.—Council Committee having the matter in hand has decided that Confederate "battle abbey" be placed at western extremity of Monument ave., provision being made for purchase of suitable plot of ground at point designated.

Roanoke, Va.—Citizens will urge Board of Aldermen to adopt ordinance calling election on \$800,000 civic improvement bonds.

Warrenton, Va.—City will rebuild city hall recently destroyed by fire.

Ballard, Wash.—Construction of public comfort station next to old city hall is being urged.

Seattle, Wash.—City Engineer R. N. Thomson has outlined plan for filling in portion of harbor front and building sea wall from Smith Cove to East Waterway.

Seattle, Wash.—Council is considering bill authorizing submission to voters of proposition to issue \$2,000,000 park bonds.

Tacoma, Wash.—South End Improvement Club has petitioned for establishment of public playground at Point Defiance.

Tacoma, Wash.—Council has adopted resolutions instructing Commissioner of Public Works to prepare plans for comfort station to be constructed at corner of S. 13th and Commerce sts.

Viroqua, Wis.—Board of Supervisors has decided to erect \$20,000 jail.

Hamilton, Ont., Can.—City has approved plans for two police stations; cost \$50,000.

St. John, N. B., Can.—Harbor Board has appointed a Special Committee to enquire into matter of building a wharf south of Reed's Point.

BIDS RECEIVED AND CONTRACTS AWARDED

San Francisco, Cal.—The Associated Contracting Co. has been awarded contract for furnishing material and constructing bulkhead wharf at Section 11 of the sea wall, near foot of Beale st., its bid of \$45,743 being lowest of eight received by Board of Harbor Commissioners.

San Francisco, Cal.—Bids were received for steel cell work for the new Hall of Justice, and the bids varied between the simple cells opened by a key and those which open with a lever; Dyer Bros.' bid of \$29,000 was the lowest and that of the Frick B. Jail Building Co., of Pittsburg, \$40,800, the highest. No award will be made until it is determined which is the best.

San Francisco, Cal.—Harbor Board has approved the surety bond of \$132,000 furnished by the Thompson Bridge Co. and signed the contract for constructing pier 54.

North Chicago, Ill.—The following are the proposals opened by the Bureau of Yards and Docks, Navy Dept., Washington, D. C., for inner basin sea wall at the naval training station, North Chicago, Specification No. 1673: (a) Total cost for inner basin sea wall complete, together with cut and fill for roadway, rolling same, arch culvert, dams, drains and catchbasins complete; (b) for the work as described in (a), using sheet piling of the grooved and splined type, instead of Wakefield sheet piling: Great Lakes Dredge & Docks Co., 138 Washington st., Chicago, Ill., (a) \$42,800, (b) \$43,900; Fitz Simons & Connell Co., 131 La Salle st., Chicago, Ill., (a) \$44,197; Greiling Bros. Co., 124 N. Adams st., Green Bay, Wis., (a) \$54,481, (b) \$53,981; Jas. Corse, 1206 Park ave., Racine, Wis., (a) \$49,937, (b) \$47,037; Standard Construction Co., 164 Dearborn st., Chicago, Ill., (a) \$59,800, (b) \$59,800; Geo. R. Keachie, 211 S. Mills st., Madison, Wis., (a) \$49,870, (b) \$49,870; Gabriel Bros. Const. Co., 135 Broadway, New York, N. Y., (a) \$49,925; P. W.

Galloway, 6th and Main sts., Racine, Wis., (b) \$56,950.

New Orleans, La.—Orleans Levee Board awarded contract on Nov. 27 to Hampton Reynolds for completion of the New Basin Canal Levee, at 74c. per cu. yd.; total cost, \$25,530.

Lynn, Mass.—Following are bids opened Nov. 19 by Harbor & Land Commissioners, Boston, for dredging anchorage basin at entrance channel in Lynn Harbor, about 37,000 cu. yds., price give per cu. yd.: John H. Gerrish, Boston, 17.9c.; Bay State Dredging Co., Boston, 21.1c.; J. P. O'Riordan, Charlestown, 18.1c.

Malden, Mass.—The Park Commission has received the following bids for work on Bell Rock Park on the walls, approaches, etc., for the new Soldiers' Monument: Mosley, Flatley & Co., first section, \$5,500; second, \$2,328.90; total, \$7,828.90; Richard J. Howard, first section, \$6,340.55; Connolly Bros., first section, \$6,500; second section, \$2,865; total \$9,365; Dennis Driscoll, first section, \$6,875; second section, \$1,325; total, \$8,100.

Hoboken, N. J.—General contract for construction of pier for Hoboken Land & Improvement Co. in northerly part of Hoboken on North River, from plans of Wal-

ter F. Whittemore, 1 Newark st., has been awarded to R. P. & J. H. Staats, of 29 Broadway New York, N. Y.; cost \$650,000.

South Amboy, N. J.—Bernard Roddy was awarded contract to place street signs on street corners for 8c. each; where no buildings exist, signs to be placed on posts for 30c.

Albany, N. Y.—F. C. Stevens, State Superintendent of Public Works, Dec. 2, awarded barge canal contract No. 54 for the construction of lock No. 7, at Fort Edward, to Scott Brothers, of Baldwinsville, for \$250,590; contract No. 69, for the construction in the Hudson River, near Mechanicville, of lock No. 2, to I. A. Hodge & Co., Inc., of Syracuse, for \$240,061; No. 72, dredging a channel in the Hudson River between locks 2 and 4, about four miles, Shanley-Morrissey, Inc., New York, \$1,192,738, and No. 2E; completion of contract No. 2 at Waterford, Holler & Shepard, Rochester, \$261,667. For No. 36, furnishing winches for movable dams, J. D. Miller, New York, \$44,800 was low bidder.

Newark, N. Y.—Town Board of Arcadia has authorized Supervisors and Town Clerk to purchase five voting machines of Stand-

ard Voting Machine Co., of Rochester, to be delivered on or before September 1, 1910.

Utica, N. Y.—Contract for disposing of garbage of city for term of five years has been awarded to Henry Stappenbeck for \$30,500, or at rate of 6,100 per year, by Board of Contract and Supply.

Raleigh, N. C.—Municipal Building Commission has awarded contract for municipal building and auditorium adjoining it to seat 4,500 persons, to John A. Carter & Co., of Philadelphia, for \$94,500.

Portland, Ore.—United Engineering & Construction Co. has been awarded contract by the Executive Board to construct fireproof barn for \$37,000, or \$17,000 more than first appropriated by Council.—Samuel Connell, Chairman Street Cleaning Committee.

Salt Lake City, Utah.—Otis Elevator Co. has been awarded contract for furnishing and installing passenger elevator in City and County Bldg., at \$6,400; Van Emon Elevator Co. bid \$5,263.—George O. Chaney, City Engineer.

Chinook, Wash.—Pacific County Commissioners have awarded contract to Byres & Burcham, Kelso, for construction of a public wharf, at \$4,400.

TOO LATE FOR CLASSIFICATION

STREET IMPROVEMENTS

Birmingham, Ala.—Street Committee has recommended that bids be received for paving ten streets.—Alderman Copeland, Chairwoman.

Colorado Springs, Col.—City is considering paving of streets in the business section.—T. F. Wagener, City Engineer.

Fort Pierce, Fla.—Citizens have voted \$200,000 for system of rock roads.

Pensacola, Fla.—Board of Public Works is considering construction of new paving on city streets and roads, and betterment of roads now in use.

Pensacola, Fla.—City has sold \$100,000 improvement bonds to continue street paving work to Captain W. W. Flournoy, of De Funak.

Elgin, Ill.—Plans are being prepared by City Engineer C. E. Plum for brick or asphalt paving for Spring st. and brick paving for S. State and Walnut aves.

Rochelle, Ill.—Bids will be received by Board of Local Improvements, December 13, 7 p. m., for approximately 30,000 yds. of brick paving, on 5-in. concrete, 4,800 yds. of earth cutting, 10,500 ft. curb and gutter and 2,800 ft. sandstone curb.

Evansville, Ind.—Bids will be readvertised for purchase of steam roller.

Marshalltown, Ia.—City is considering laying of 7 miles of brick paving next year. O. L. Ingledue, Mayor.

Webster City, Ia.—City is considering considerable brick paving. H. M. Sparrowe is interested.

Kansas City, Kans.—Bids will be received by Board of Commissioners of Wyandotte County, December 13, for grading and macadamizing Sherman road; cost, \$12,000. J. M. Lindsay, County Engineer.

Lawrence, Mass.—City Engineer A. D. Marble will prepare plans for curbing and general beautifying of Crescent Park.

Taunton, Mass.—Abolition of grade crossings and construction of new central station will be started in spring of 1910, according to agreement reached between Col. J. H. Benton, representing the railroad, Attorney-General Malone and City Solicitor Harold F. Hathaway.

Ford, Mich.—Citizens have voted \$71,000 bonds for paving Biddle ave.

Hart, Mich.—Citizens have defeated proposition to issue \$40,000 bonds for constructing good roads.

Atlantic City, N. J.—Boardwalk Committee of Council has advertised for bids for building concrete piers under boardwalk where old steel supports will have to be taken out, boardwalk will be widened from 20 to 40 ft. from Albany ave., Chelsea, to Texas ave.; new part will be constructed of concrete.

Wilson, N. C.—Bids will be received by Wilson Township Road Commissioners, December 15, for macadamizing 8 to 10 1/2 miles of macadam road. J. C. Hales, Secretary.

Canton, O.—Plans are being prepared for paving N. McKinley ave., cost \$25,862.85. A. R. Turnbull, Mayor.

Barberton, O.—Paving of 3d, 4th and Creedmore sts. is being considered.

Columbus, O.—Residents of Clintonville are urging widening of North High st. from Clintonville to Worthington; distance about 3 miles.

Dayton, O.—North Dayton Improvement Association will urge paving of more streets.

Lima, O.—City is considering laying of 14,000 sq. yds. brick paving on McKelba st. next year. J. K. Bruce, City Engineer.

Springfield, O.—Council has passed resolutions for paving, curbing, grading and constructing sidewalks in number of streets.

Guthrie, Okla.—Bids will be received, December 16, 5 p. m., for construction of sidewalks. A. A. Leer, City Clerk.

Johnstown, Pa.—Bids will be received by Department of Public Works, December 21, for laying about 89,893 sq. yds. of vit. brick on concrete and cinder base; cost, \$140,000. M. I. Masterson, City Engineer.

New Castle, Pa.—Council is considering paving of Washington, North and Moravia sts. next summer.

Philadelphia, Pa.—Merchants of Columbia ave. are urging paving of that thoroughfare with wood block. J. A. McGrath, 1231, is Secretary of temporary organization.

Scranton, Pa.—Council has passed finally ordinances for improvement of five streets.

Charleston, S. C.—Bureau of Yards and Docks, Navy Department, Washington, has rejected all bids for vit. brick paving at navy yard, city; bids will be readvertised.

Hillsboro, Tex.—Citizens will vote, December 11, on adoption of new laws authorizing incorporated towns, etc., to construct permanent street and sidewalk improvements.

Thorpe Springs, Tex.—First District, Hood County, has voted \$25,000 bonds for good roads.

Salt Lake City, Utah.—City will buy machinery at cost of not more than \$1,000 for purpose of repairing small faults in asphalt pavement.

Suffolk, Va.—Nansemond County Supervisors will expend \$14,000 next year on good roads.

Tacoma, Wash.—Council will consider opening, paving and grading of portion of Cliff ave.

SEWERAGE

Birmingham, Ala.—Street Committee has recommended construction of sewer on 13th st.—Alderman Copeland, Chairman.

Pensacola, Fla.—Board of Public Works is considering construction of number of sewers.

Elgin, Ill.—Plans are being prepared by City Engineer C. E. Plum for tile sewers for Fifth and Seventh wards; cost about \$140,000.

Ft. Wayne, Ind.—Bids will be received by Board of Local Improvements, December 16, 7.30 p. m., for the construction of new sewers in various streets. H. W. Becker, Clerk.

Boone, Ia.—City is considering construction of 9 1/2 miles of sewer in Fifth Ward. K. C. Kastberg, City Engineer.

Ft. Dodge, Ia.—Plans are being prepared by City Engineer C. H. Reynolds for two blocks of storm sewers.—K. E. Beal, City Clerk.

Grinnell, Ia.—Bids will be received by Council, December 14, 7.30 p. m., for construction of 5,530 ft. of 10 to 24-in. storm sewer.—A. C. Harriman, City Clerk.

Webster City, Ia.—City is considering construction of sanitary sewers.—H. M. Sparrowe is interested.

Traer, Ia.—All bids received November 29 for construction of system of sanitary sewers have been rejected; new bids will be received January 13; low bidder was M. A. Camery, Harlan, with total bid of \$15,298.20. Following are details: 600 ft. 6-in pipe, 30c.; 2,734 ft. 8-in., 75c.; 3,558 ft. 10-in., 90c.; 5,060 ft. 12-in., \$1.10; 1,266 ft. 15-in., 75c.; 31 manholes, \$36; 4 flush tanks, \$81; 1 bulkhead, \$35, and 1 septic tank, \$1,875.—

Iowa Engineering Co., Clinton, Consulting Engineers.

Lawrence, Mass.—Board of Aldermen has authorized Mayor White and City Engineer A. D. Marble to call for bids for constructing sewer, about 1,500 ft. of length; cost, \$3,000.

Lawrence, Mass.—Bids will soon be called for sewer on Merrimack st. to Shaw Sheen River.—A. D. Marble, City Engineer.

Lowell, Mass.—Board of Aldermen has decided to extend sewers in Moore and Marsh sts.

Salem, Mass.—Plans are being prepared by City Engineer Geo. F. Ashton for proposed sewers; \$35,000 is available. P. F. Kelley, Street Commissioner.

Detroit, Mich.—Council has directed Department of Public Works to advertise for proposals for construction of seven vitrified crock sewers through alleys.—J. J. Haarer, Commissioner.

Ely, Nev.—City Engineer Alfred B. Colwell has been authorized to retain the services of Alexander Potter, Consulting Engineer, 116 Liberty St., New York City, in connection with the design of a sewage disposal plant for the city of Ely. The plant will be constructed in the spring of 1910.

Morristown, N. J.—Board of Aldermen has passed third reading sewer ordinance requiring house connections in 30 days.

Akros, O.—Bids will be received December 14, noon, for construction of sewers on Upson st. and Frances Ave.—R. F. Hamlin, Secretary, Board of Public Service.

Woodville, Pa.—Plans are being prepared for 12-in. terra sewer to be constructed at Allegheny County Home.—A. McMaster, Curry Building, Pittsburg, architect.

WATER SUPPLY

Colby, Kan.—Citizens will soon vote on bonds for construction of a system of water works. Burns & McDonnell, Scarritt Building, Kansas City, Mo., Engineers, have completed preliminary plans.—F. W. Weits, City Clerk.

Rome, N. Y.—Citizens have voted \$65,000 additional water bonds.

Hydro, Okla.—City has not as yet let contract for construction of water works. Burns & McDonnell, Scarritt Building, Kansas City, Mo., Engineers.

Philadelphia, Pa.—Chief Dunlap of Water Bureau has completed plans for extension of the high pressure fire service mains now in commission between Delaware River and Broad st.

Dallas, Tex.—Plans and specifications for 2,100-ft. dam at White Rock Creek for city's water works system have been completed.—William Barclay Parsons, Consulting Engineer.

Dallas, Tex.—Bids will be received December 10, for 200 tons of 6-in. water pipe and specials, to be used on sundry extensions to water system.—J. M. Preston, City Engineer.

Midland, Tex.—Citizens have voted bonds for installation of water works system.

Gunnison, Utah.—Citizens will vote on installation of modern water works system; cost, \$13,500.

LIGHTING AND POWER

Fort Wayne, Ind.—Bids will be received by Board of Public Works, December 20, 2 p. m., for franchise of boiler for lighting plant.—W. J. Hosey, Mayor.

Marion, Kan.—Bids will be received December 16 for construction of an electric lighting plant.

Evansville, Ind.—Former State Senator Hal C. Kimbrough, of Muncie, has petitioned Board of Public Works for heat, light and power franchise, opposing one now pending from Evansville Public Service Co.; Mr. Kimbrough offers lower terms.

Leavenworth, Kan.—Leavenworth Light, Heat & Power Company will expend between \$25,000 and \$26,000 in improvements to its plant within next few months, and increase its efficiency from 1,400 to 2,400 h.p.

Marblehead, Mass.—Citizens have voted \$30,000 bonds for modernizing and enlarging electric light plant.—Jas. E. Price, Lighting Committee.

Hydro, Okla.—City did not let contract for construction of a light plant.

Morristown, Pa.—Bids will be received December 29, 3 p.m., for a fire protection equipment, air compressor, engine, dynamo, motor-generator and switchboard.—J. L. West, Steward, State Hospital for Insane, Southeast District.

Reading, Pa.—Bids will be received December 13, 7 p.m., for lighting streets with electricity and Welsbach gas lights for period of 1 year, 3 years and 5 years, beginning next April.—Caleb Weidner, City Clerk.

Scranton, Pa.—Council is considering two ordinances on contract of lighting city streets; one ordinance provides for furnishing electric arc lights and other for furnishing incandescent or gas lights.

FIRE EQUIPMENT

Birmingham, Ala.—Bids will be opened Dec. 15 by Fire Committee for purchase of 5,000 ft. of hose.

Los Angeles, Cal.—Bids will be received by Board of Public Works, 18 City Hall, December 13, 11 a.m., for construction of fire engine house, on Figueron st.—John P. Krempel, 414-416 Henne Building, architect. Horace B. Ferris, Secretary.

Pueblo, Col.—City will receive bids at once for automobile truck; cost, \$7,000.

Central City, Ky.—Town will organize and equip volunteer fire department.

Hibbing, Minn.—City will erect \$5,000 fire hall.

Morristown, N. J.—Board of Fire Wardens has applied for new wagon to hold ten men.

Kenmore, N. Y.—Village will purchase \$400 chemical engine, automobile fire bell and fire ladder.

Dayton, O.—North Dayton Improvement Association will urge erection of engine house.

Lyndonville, Vt.—Purchase of chemical engine is being considered.

Tacoma, Wash.—Bids will be received, December 20, 11 a.m., for furnishing various fire department equipment.—H. J. McGregor, Commissioner Public Works.

Milwaukee, Wis.—Architects H. Messmer & Son have prepared plans for three-story fire house.

ELECTRIC RAILWAYS

Hagerstown, Md.—Traction companies operating lines between Hagerstown and Harrisburg, Pa., are interested in project to connect these two places by building connecting link through Shippensburg, between Chambersburg and Newville.

Piedmont, W. Va.—J. P. J. O'Brien, Wheeling, is negotiating to obtain franchise to build trolley line from this place to Bloomington; franchise, which had been granted Wheeling parties, expires December 15; no effort toward building the line, which would pass through Luke, Md., and Beryl, W. Va., has been made.

BRIDGES

Los Angeles, Cal.—Bids will be received by Board of Supervisors, Los Angeles County, December 13, 2 p.m., for construction of pile trestle bridge over Lexington Wash, on Garvey ave., in San Gabriel Road District.—C. G. Keyes, County Clerk.

Colorado Springs, Col.—Park Commission is considering construction of two concrete bridges across Cheyenne creek in North Cheyenne Canon.—A. C. Diest, Secretary.

Indianapolis, Ind.—City Engineer Miller has completed new plans for bridge to be erected across Pogues run in Commerce ave.; cost approximately \$5,000; ordinance is now pending in the City Council to appropriate \$6,000 for the purpose.

Wichita, Kan.—Citizens will vote early in December on issuance of \$35,000 bonds for construction of a concrete or steel bridge, at Eleventh st.—Bert Wells, City Engineer.

Kansas City, Mo.—Board of Park Commissioners has ordered plans prepared by Consulting Engineer Ira Hedrick, Keith & Perry Building, for reinforced concrete bridges, Venetian styles, in Swope Park.—F. P. Gossett, Secretary.

Sibley, Mo.—Bids will be received by Board of Commissioners, Jackson County, Kansas City, December 14, for two 24-ft. steel spans, with stone abutments, 3 miles west of Sibley, between Sections 5 and 6.—R. T. Proctor, Kansas City and Independence County Engineer.

Hebron, Neb.—Bids will be received December 28, noon, for construction of a bridge.—J. C. Strain, Clerk, Board of Commissioners.

Dayton, O.—North Dayton Improvement Association will urge erection of river bridge.

Toledo, O.—Ohio Savings Bank & Trust Company, city; Spitzer & Co., city; Cleveland Trust Company, of Cleveland, and Pearson, Son & Co., of Chicago, bidding jointly, have been awarded \$300,000 Cherry st. bridge bonds by Council Committee on Finance, Ways and Means.

Dallas, Tex.—Grades and lines have been given by City Engineer J. M. Preston to mechanical department of Katy Railway for construction of steel girder bridge over Hall st.

Dallas, Tex.—Bids will be received January 5, 2 p.m., for furnishing and construction of steel highway bridge and viaduct over Trinity River; span will be 200 ft. with approaches consisting of 2,520 ft. of plate girder spans of 60 ft. each.—J. F. Witt, County Engineer.

MISCELLANEOUS

Colorado Springs, Col.—Council and Board of Education are considering substituting uniform style of sanitary fountains for those now in use in streets, parks and buildings throughout city.

St. Augustine, Fla.—Street Committee has been instructed to order 250 street signs.

Chicago, Ill.—City Engineer John Ericson has prepared specifications for bathing beaches as follows: Montrose ave., at cost of \$22,000, by the city; Diversey blvd., by Lincoln Park Commissioners; 22d st., beach and crescent-shape pier to cost city \$50,000; 51st st., beach and island on Morgan reef, to cost city \$50,000; Jackson Park, beach north of the yacht harbor, built by South Park Commissioners, and 79th st., rehabilitation of present beach by city.—Alderman T. K. Long, Chairman, Special Committee on Bathing Beaches.

Kansas City, Mo.—Board of Park Commissioners is considering establishing a public park near new Union Station.—W. H. Durin, Engineer.

Trenton, N. J.—Plans have been completed for proposed Capitol Park, along Delaware River. Coming Legislature will be asked to appropriate \$60,000 as State's share of expense in building retaining wall, filling low tract and removing a shoal from stream to do away with danger of ice jams. City authorities will provide the balance of the money required.

New York, N. Y.—Board of Estimate has passed resolution authorizing erection of Children's Court Building at cost of \$15,000.

Rochester, N. Y.—Residents of 18th Ward are urging purchase of land at Webster ave. and Bay st. for park purposes.

Williston, N. D.—H. W. James, New York, has willed city \$20,000 for erection of library.

Johnstown, Pa.—Council has voted \$4,000 for auto patrol; purchase of \$2,000 auto for Chief of Police is being considered.

Dallas, Tex.—City Commissioners will consider calling election on \$200,000 bonds for park purposes.

Civil Service Examinations

Civil Engineers.—Competitive examinations of applicants for positions of civil engineers, Class 27, will be held by the Civil Service Commission, Boston, Mass., February 8, 1910.

Senior Mechanical Draftsman.—The United States Civil Service Commission announces an examination, January 5-6-7, to fill vacancies in the position of senior draughtsman in the ordinance bureau. Salaries, \$1,600 to \$1,800. Form 1312.

Junior Engineer Draftsman.—The United States Civil Service Commission announces an examination, January 5, 1910, to fill vacancies in the position of junior engineer draftsman, Engineer Department at Large, at salary ranging from \$1,000 to \$1,500. Application form 1312.

State Service.—The New York State Civil Service Commission, Albany, N. Y., will hold examinations, December 11, for the following positions: Bridge designer, salary.....\$1,500 to \$2,100 Bridge draftsman, salary.....1,200 to 1,500 Junior bridge draftsman, salary.....900 to 1,200 Statistician, salary.....1,800 to 2,400

PATENT CLAIMS

940,035. EXCAVATING APPARATUS. Arthur E. Lehmann, St. Charles, Mo. Serial No. 498,466.

In apparatus of the class described, the combination of an excavating bucket having its front end open and a suitable cutting edge thereat, means for supporting the bucket in the digging position, a traction member fixed to the bucket and projecting forward from its said end, and a cable adapted to be directly coupled to the said member at varying heights respectively, from the said edge for hauling the bucket and regulating the depth of cut by the said edge into the material to be excavated, substantially as described.

940,056. HYDRAULIC PUMP. Augustine J. Pocock, Dayton, Ohio. Filed June 27, 1908. Serial No. 440,606.

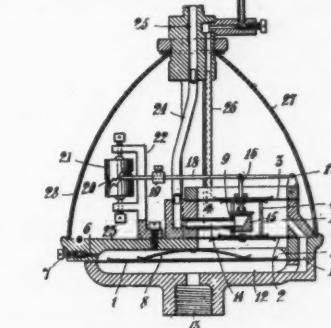
A pump of the type specified, consisting of a hollow standard constituting an inlet pipe and extending on one side in a side plate and on two opposite sides in a swell or enlargement which extends in the form of a ring, an impeller within said ring, said swell or enlarged portion and the side plate integrally joined to the hollow standard, terminating at the top of the pump in a screw-threaded nozzle or extension in alignment with the hollow standard, an outlet pipe connected with said nozzle, the said ring forming on the interior of the pump walls between the impeller and inlet and outlet chambers communicating with the hollow standard and the outlet pipe, and a detachable side plate opposite the integral side plate, said detachable and integral side plates providing ports leading from the inlet chamber below the impeller to the interior of the ring above the impeller to the outlet chamber, substantially as specified.

940,082. COMBINED GARBAGE-CAN AND RUBBISH-BURNER. Edwin D. Smith, Pittsburg, Pa. Serial No. 454,585.

A combined garbage can and rubbish burner comprising a frame, a can mounted on the frame, and a basket received in the frame beneath the can, said basket being covered and provided with an opening for the introduction of the material to be burned for drying the contents of the can.

940,046. APPARATUS FOR LIGHTING AND EXTINGUISHING GAS-LIGHTS FROM A DISTANCE. John F. Nässén and Axel E. T. Bergström, Stockholm, Sweden. Serial No. 494,167.

In an apparatus of the character described, the combination of a gas valve, a diaphragm operatively connected to the said gas valve, and a second diaphragm



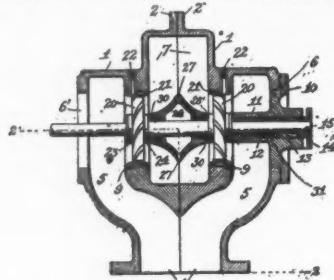
movable independently of the former, said latter diaphragm forming together with the former a closed chamber communicating through a narrow passage with the outer air, substantially as and for the purpose set forth.

940,061. APPARATUS FOR LAYING CONCRETE SIDEWALKS, CURBS, ETC. Ernest L. Ransome, New York, N. Y., assignor to Ransome International Conduit Co., New York, N. Y., a Corporation of Maine. Serial No. 406,832.

An apparatus for forming concrete work with substantially plane horizontal surfaces comprising a traveling mold having a top molding wall adapted to form such surface and side walls extending down from the side portions of the top molding wall and connected to move with the same along the side walls of the work, the bottom of the mold being open.

940,257. CENTRIFUGAL PUMP. Charles V. Kerr, Wellsville, N. Y. Serial No. 357,924.

A centrifugal pump comprising a shaft mounted for rotation, a propeller fixed on said shaft, suction and discharge passages leading to and from said propeller re-



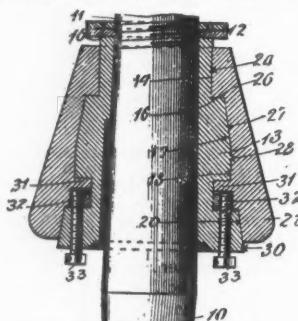
spectively and a diffusing member loosely mounted on said shaft adjacent said propeller in said discharge passage.

940,323. BULKHEAD FOR TUNNELS AND THE LIKE. George W. Jackson, Chicago, Ill. Serial No. 429,620.

A bulkhead for tunnels and the like, comprising a hollow frame, or casing, which approximates in form and dimensions the cross section of the bore of the tunnel and provided with a hollow, inflatable rim in open communication with the casing, and means for admitting an inflating medium to the casing and to the rim for expanding the rim outwardly against the tunnel walls.

940,352. STONE-CRUSHER HEAD. Wesley G. Nichols, Chicago, Ill., assignor to American Brake Shoe & Foundry Company, Jersey City, N. J., a Corporation of New Jersey. Serial No. 333,559.

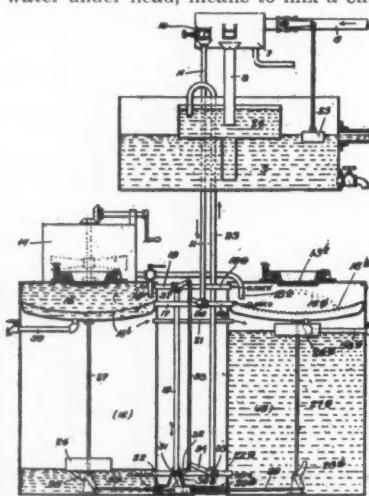
A composite crusher head, comprising a hollow, generally conical manganese steel mantle, a coacting generally conical core within said mantle, longer than the man-



tle to permit a vertical extension of said mantle without loosening the support of the core, means effecting positive but detachable connections between the mantle and core only in a single zone below the middle of the mantle.

940,402. FEEDING DEVICE FOR WATER-PURIFYING APPARATUS. Duncan W. Patterson, Philadelphia, Pa. Serial No. 364,630.

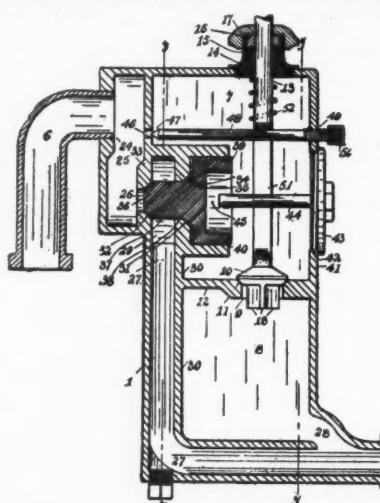
In a feeding device the combination of a plurality of closed tanks and means to introduce into each of them in turn a supply of water under head, means to mix a chem-



ical in the water, and means to conduct the displaced air in such tank to the next tank in turn, to thereby drive out water in the latter and elevate it, substantially as described.

938,683. FLUSHING APPARATUS. Paul S. Milice, Hamilton, O. Serial No. 329,056.

A flushing apparatus comprising a casing having a pressure-compartment, a discharge-passage and a receiving-chamber, the walls of said receiving-chamber being provided with an inlet-opening and with a discharge-opening to said discharge-passage, said discharge-opening being of less cross-section than said inlet-opening, in combination with a compound valve for the walls of said discharge-passage between said receiving-chamber and pressure-compartment and forming a valve for said dis-



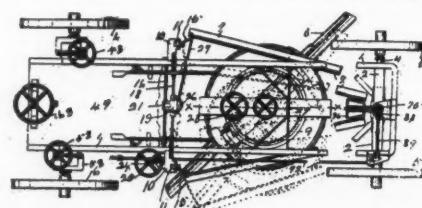
charge-opening, said compound valve having a backing-face of greater area in said pressure-compartment than the area of said discharge-opening, the wall of said receiving-chamber being further provided with a by-pass of smaller diameter than said discharge-opening, said by-pass being outside the longitudinal plane of the said valve for said discharge-opening for leading the fluid around said compound valve from in advance to the rear thereof, said by-pass being further disconnectable from said discharge-opening so as to receive its fluid from a different part of said receiving-chamber than said discharge-opening, substantially as described.

939,804. TESTING PLUG FOR SEWER-TRAPS. John F. Christy, Sheridan, Pa. Serial No. 455,016.

For plugging the clean-out and the outlet of sewer traps at opposite sides of the inlet, where the clean-out is smaller than the outlet, a plug having a foldable elastic cup-washer adapted to fit the interior of the said outlet, a plug adapted to close the clean-out by a movement toward the said outlet, and means connecting the said plugs together.

940,169. ROAD-MAKING MACHINE. Elias L. Lathrop, Gallion, Ohio. Serial No. 476,556.

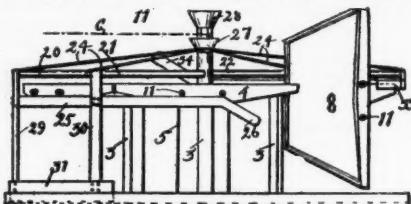
In a road-making machine means for laterally adjusting the scraper blade, consisting of a transverse rotatable screw; means for actuating the screw; a nut or bur mounted on the screw by a screw threaded connection; a fixed bar in parallel relation to the screw and forward thereof; a boxing



slidably mounted on the bar, and having a socket on its front face, and provided upon its rear face with a pair of apertured ears embracing the bur and loosely receiving the said screw; and a rod having a ball on its inner end adapted to form a bearing in the socket of the boxing, and having its other end pivotally connected to the blade supporting means.

938,636. FILTER. Ralph S. Browne, Alameda, Cal. Serial No. 453,266.

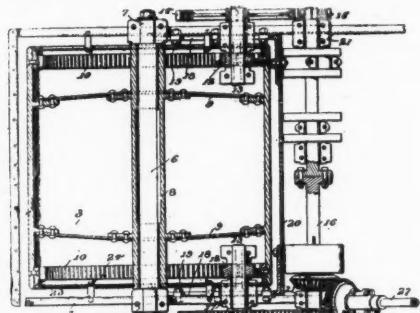
In a filter, the combination of a filter bed, a pipe leading from said filter bed and with which said bed is revoluble, means whereby a reduced air pressure may be produced in



said pipe when in one position, means whereby an increased air pressure may be produced in said pipe when in the opposite position, and means to turn said pipe and filter bed from one position to the other and vice versa.

939,873. ROAD-ROLLER. Marquis J. Todd and David Farquhar, Buffalo, N. Y., assignors to Buffalo Steam Roller Company, Buffalo, N. Y. Serial No. 424,032.

In a road roller, in combination, a main frame, a roll mounted on said frame, continuous racks within the roll at the opposite ends thereof, two sets of gearing at opposite sides of the frame extending into the roll and in mesh with said racks, fixedly mounted shields fitted within the ends of said roll adjacent to said racks, said gearing comprising short shafts, brackets forming bearings for said short shafts mounted on said frame and extending into the roll, be-



yond the planes of said racks, pinions on said shafts in mesh with said racks, said brackets supporting said shafts on opposite sides of said pinions, and gear wheels on the outer ends of said short shafts, said shields having openings to accommodate said brackets, and an engine driven shaft mounted on said main frame adjacent to said roll and having pinions in mesh with the gear wheels of said short shafts.

INCORPORATIONS

Colonial Engineering and Construction Company, 1 Exchange place, Jersey City, N. J., to deal in builders', engineers' and contractors' supplies. Capital, \$50,000. Incorporators: Jesse Russell Taft, 157 West Eightieth street, Manhattan; Norman B. L. Seccord, Grantwood, and James S. Frazer, 51 Clark street, Brooklyn.

Lucius Engineering Co., Camden, N. J.; engineering, contracting, construction; capital, \$75,000. Incorporators: V. A. Murray, H. G. Elliott and Archworth Martin, all of Camden, N. J.

Marengo Public Service Co., Marengo, Ind.; capital, \$30,000; general manufacturing, also manufacturing light, heat, power and ice. Incorporators: Robert T. Fry, Gardner G. Willard, William W. Evans.

Marshall Concrete Construction Co., 76 Montgomery street, Jersey City, N. J.; to carry on a general concrete construction business; capital, \$100,000. Incorporators: William G. August, 46 Wayne street, and Albert H. Seeley and Donald Hutchinson, of 157 Grand street.

Seaboard Structural Works, Jersey City, N. J., to construct bridges, trestles, viaducts, aqueducts, etc.; capital, \$400,000. Incorporators: Elliott C. Smith, Englewood, N. J.; Charles Schlegel, 250 Academy street; Stephen C. Lewis, 113 Atlantic street, both of Jersey City.

Standard Filtering Co., Jersey City, N. J.; to manufacture all kinds of water filters; office, 546 Ocean avenue; agent, Charles R. Piper. Capital, \$125,000. Incorporators: Harry L. Balch, 55 Boyd avenue; Charles R. and Geo. A. Piper, 232 Bergen avenue.

Winstedt Construction Co., Houston, Tex.; capital \$10,000. Incorporators: C. W. Winstedt, John W. Maxcy and E. F. Horton.